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Funding Transportation Needs in the North Central Texas Area



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North Central Texas Council of Governments

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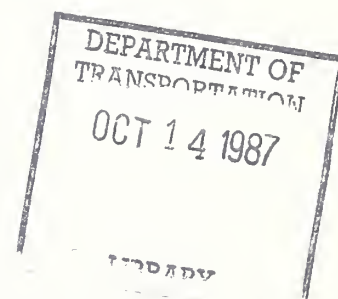


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FUNDING TRANSPORTATION NEEDS
IN THE NORTH CENTRAL TEXAS AREA



A Report Prepared for
North Central Texas Council of Governments
Transportation and Energy Department

The Center for Applied Research
School of Social Sciences
The University of Texas at Dallas
Richardson, Texas 75083-0688

January 18, 1987

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PART I INTRODUCTION AND SUMMARY

PART I: INTRODUCTION AND SUMMARY

Study Goals

The North Central Texas Council of Governments (NCTCOG) has estimated that \$16.9 billion will be needed to fund the transportation developments called for in its "Mobility 2000" plan for the Dallas-Fort Worth area, but given the current tax and revenue structure, government agencies serving the NCTCOG area will have only \$10.5 billion available for those facilities. Thus, a gap of some \$6.4 billion occurs between discerned requirements and expected revenues.¹ This study has the goal of developing information of help in closing that gap.

Obviously, the gap can be closed either by increasing transportation revenues, directly or indirectly, or by decreasing requirements. The bulk of the effort of this study is directed to the first option, that of direct increases in revenue. This includes both increasing revenue from current sources and tapping new sources of revenue through a number of innovative devices. The alternatives to direct revenue increases are worth at least some attention, however.

Alternatives to Revenue Increases

The major indirect source of increased revenue is that of increased economic growth, generating more income than currently anticipated and consequently, more government revenue than currently projected. Transportation investment can be viewed as one of a number of instruments to promote economic growth, and investment decisions can be based explicitly on that criterion. Forkenbrock and Plazak² note that 36 states explicitly take economic development into account in their highway programming activities, and report on those programs in some detail. Viewed across all states, the level of effort currently seems relatively modest. Of the 36 states with economic development programs, 15 simply incorporate development objectives within their highway programming

process. A few states, however, do have significant levels of funding for the activity, with four states spending roughly \$10 million a year and Iowa spending close to \$30 million a year on economic development through highway programs. Iowa's funds are obtained from a 2-cent motor fuel tax with proceeds dedicated to economic development. Eleven states have programs primarily directed to making industrial parks more accessible, supplementing local and private funds in financing interchanges, frontage roads or other access roads. Matching funds are usually a condition for state contributions. Eight states have quick-response capabilities, used to expedite construction, for example by speeding review procedures and by making capital readily available. States operating under each of the program types are identified in Table 1.

Reduction in requirements can occur indirectly, through the involuntary and painful effect of an unanticipated slowdown in economic growth. It can also occur through the exercise of policy options aimed at limiting the growth of highway traffic, including use of both non-price incentives and pricing. Natalie McConnell-Fay notes a number of non-price incentives currently employed in the San Francisco Bay Area to reduce traffic.³ The Metropolitan Transportation Commission, the regional planning organization for Bay Area transportation, has introduced a Traffic Mitigation Program which helps support such activities as the work of traffic coordinators at 300 large corporations, shuttles to rapid transit stations, subsidies for transit use, and car pooling. The traffic coordinators help business employees find alternatives to commuting to work in private cars. Those programs in effect involve subsidies to reduce private vehicle use. Alternatively, the direct charging of fees for road use can also be considered as a congestion reduction device. A recent special issue of Transportation Research⁴ contains a number of papers on the implementation of such fees. The focus there is on the reduction of congestion, but such fees

TABLE 1

SUMMARY OF STATE DOT INVOLVEMENT IN ECONOMIC DEVELOPMENT

State	Econ. Devel. Objectives in Programming ^a	Special Econ. Devel. Funds/ Bonding ^b	Industrial Park Road Program ^c	Quick- Response Capabilities ^d
Alabama	•	•	•	
Alaska		•		
Arizona				
Arkansas	•	•	•	
California	•			
Colorado	•			
Connecticut	•			
Delaware	•			
Florida		•		
Georgia	•			
Hawaii	•			
Idaho	•			
Illinois	•	•	•	
Indiana	•			
Iowa	•	•		•
Kansas	•	•	•	
Kentucky	•	•	•	
Louisiana	•	•		
Maine	•	•		•
Maryland				
Massachusetts	•	•	•	•
Michigan	•	•		
Minnesota	•	•		• ^e
Mississippi				
Missouri				
Montana				
Nebraska				
Nevada	•			
New Hampshire				
New Jersey				
New Mexico	•			
New York	•	•		
North Carolina	•	•		•
North Dakota				
Ohio	•			
Oklahoma	•	•	•	
Oregon	•			
Pennsylvania	•			
Rhode Island				
South Carolina				
South Dakota	•	•	•	
Tennessee	•		•	
Texas	•			
Utah	•			
Vermont				
Virginia	•	•		•
Washington	•	•		
West Virginia	•	•	•	•
Wisconsin ^(f)	•	•		•
Wyoming	•	•	•	

Notes: ^a"Economic Development Objectives in Programming" means that the state specifically takes economic development into account in its capital programming process or has special highway programs to encourage economic development.

^b"Special Economic Development Funds/Bonding" means that the state has a categorical funding source or bonding authority for economic development or industrial park roads.

^c"Industrial Park Program" means that the state has a special program dedicated to constructing this type of road.

^d"Quick-Response Capabilities" means that the state has the ability to expedite economic development-related road projects.

^eExpedites environmental review for economic development projects.

^fProposed "AHEAD" program, which has not yet passed in the state legislature.

Source: Reproduced from Table 1 in David J. Forkenbrock and David J. Plazak
 "Economic Development and State Level Transportation Policy"
Transportation Quarterly, Vol. 40, No. 2, April, 1986, pp. 148-149.

also can be important sources of revenue, of primary interest here. In particular, one of the devices considered is an electronic sensing mechanism that measures road use in particular areas, successfully employed on an experimental basis in Hong Kong. The discussion of that device will be drawn on later in this report, emphasizing its innovative application in raising revenue.

Relative Levels of "Need" and Revenue Potential

Although the six-billion dollar shortfall for the implementation of "Mobility 2000" obviously is a considerable sum, it can be argued that there are some mitigating features in the burden posed by that shortfall. First, many other states have considerably greater ratios of planned expenditures (or "needs") to expected revenues, so their relative funding gaps are greater than those of Texas. Second, local rates of taxation appear relatively low, compared to other jurisdictions of comparable population size. Of course, it is politically unpalatable to suggest increasing taxes; nevertheless, it seems worth noting that local tax rates currently are not "excessive", in relative terms. In turn, this suggests there is considerable potential for reducing or closing the "Mobility 2000" revenue gap. The evidence for these arguments is as follows.

On the first point, evidence presented by Peter L. Shaw,⁵ reproduced here as Table 2, is pertinent. In a Congressional study, Texas' highway requirements from 1983 to 2000 were listed as \$58.4 billion, contrasted with projected highway revenues of \$52.7 billion. (The shortfall here, for the state as a whole, is less than that for the NCTCOG planning area, presumably because of lower projected needs or higher projected revenues in these figures than in those of "Mobility 2000".) The Texas ratio of needs to revenue is 58.4/52.7 or 1.11. For the U.S. as a whole, the ratio is 720,230/455,334 or 1.58.

TABLE 2

**PROJECTED CAPITAL NEEDS, REVENUE, AND REVENUE
SHORTFALL FOR CASE-STUDY STATES AND THE UNITED STATES,
BY FUNCTION**

State	Projected Capital Requirements 1983 to 2000 (millions of 1982 dollars)					Projected Revenue 1983 to 2000 (millions of 1982 dollars)					Projected Gap 1983 to 2000 (millions of 1982 dollars)					
	Population (thousands) 1990	Highways	Other Transportation	Sewer	Water	Total	Highways	Other Transportation	Sewer	Water	Total	Highways	Other Transportation	Sewer	Water	Total
Alabama	4,214	12,580	14,295	1,001	916	28,792	8,740	10,409	779	N/A	N/A	3,840	3,886	222	N/A	N/A
California	27,526	44,742	15,225	16,982	14,035	90,984	22,688	9,558	10,647	5,281	48,174	22,054	5,667	6,335	8,754	42,810
Colorado	3,755	9,300	4,450	1,230	2,020	17,000	7,700	2,050	660	2,020	12,430	1,600	2,400	570	0	4,570
Florida	13,316	26,559	1,445	1,588	1,254	30,846	16,600	827	873	1,254	19,554	9,959	618	715	0	11,292
Indiana	5,679	31,600	864	9,000	N/A	N/A	21,456	617	6,750	N/A	N/A	10,144	247	2,250	N/A	N/A
Kentucky	4,074	20,430	293	3,070	1,428	25,221	8,550	286	1,464	1,349	11,649	11,880	7	1,606	79	13,572
Louisiana	4,747	19,363	291	2,411	N/A	N/A	17,827	268	N/A	309	N/A	1,536	23	N/A	N/A	N/A
Maine	1,229	1,702	296	1,745	N/A	N/A	1,702	142	221	N/A	N/A	0	154	1,524	N/A	N/A
Maryland	4,491	15,691	1,398	1,609	633	19,331	7,327	1,128	3,258	1,734	13,447	8,364	270	-1,649	-1,101	5,884
Massachusetts	5,704	8,800	8,170	8,300	1,150	26,420	6,119	1,422	2,331	306	10,178	2,681	6,748	5,969	844	16,242
Missouri	5,077	19,888	1,704	3,082	1,691	26,365	9,090	645	1,379	613	11,727	10,798	1,059	1,703	1,078	14,638
Montana	888	3,186	90	115	86	3,477	1,599	72	115	14	1,800	1,587	18	0	72	1,677
New Jersey	7,513	17,914	5,573	5,888	3,010	32,385	8,485	3,290	3,636	1,905	17,316	9,429	2,283	2,252	1,105	15,069
New Mexico	1,536	2,650	396	356	1,214	4,616	1,680	190	89	1,214	3,173	970	206	267	0	1,443
New York	16,457	45,600	37,300	17,300	7,200	107,400	34,452	14,076	14,600	3,654	66,782	11,148	23,224	2,700	3,546	40,618
North Carolina	6,473	18,860	1,023	1,774	1,829	23,486	13,810	74	1,384	1,312	16,580	5,050	949	390	517	6,906
Ohio	10,763	47,367	4,096	10,863	N/A	N/A	9,877	920	8,857	N/A	N/A	37,490	3,176	2,006	N/A	N/A
Oklahoma	3,503	12,400	129	300	4,300	17,129	7,700	N/A	21	N/A	N/A	4,700	N/A	279	N/A	N/A
Oregon	3,319	6,957	1,359	3,600	3,500	15,416	5,208	1,013	2,000	1,700	9,921	1,749	346	1,600	1,800	5,495
South Carolina	3,560	5,409	184	990	426	7,009	1,900	N/A	900	426	N/A	N/A	N/A	90	0	N/A
Tennessee	5,073	24,944	527	1,973	1,210	28,654	17,921	454	1,065	N/A	N/A	7,023	73	908	N/A	N/A
Texas	17,498	58,400	N/A	5,700	6,000	N/A	52,700	N/A	N/A	N/A	N/A	5,700	N/A	N/A	N/A	N/A
Washington	5,012	12,146	N/A	6,623	1,733	N/A	7,181	N/A	2,425	1,733	N/A	4,965	N/A	4,198	0	N/A
Total	161,407	466,488	99,108	105,500	53,635	—	288,412	47,441	63,454	24,824	—	178,076	51,667	42,046	28,811	—
Associated population	—	161,407	138,989	161,407	138,989	—	157,847	131,834	139,162	113,448	—	—	—	—	—	—
Case study State estimate	—	466,488	115,170	105,500	62,286	749,444	294,917	58,083	73,597	35,318	461,915	171,571	57,087	31,903	26,968	287,529
Per capita needs	—	2,890	714	654	386	—	1,827	360	456	219	—	1,063	354	198	167	—
U.S. population	249,203	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total U.S. needs	—	720,230	177,815	162,886	96,166	1,157,097	455,334	89,677	113,630	54,529	713,170	264,896	88,139	49,256	41,637	443,928

Dec. 27, 1983

Dec. 27, 1983

Source: Reproduced from Table IV in Peter L. Shaw, "The Surface Transportation Assistance Act of 1982: Short-term Hopes and Long Term Implications", Transportation Quarterly, July, 1986, pp. 426-427. Originally appearing in U.S. Congress, Joint Economic Committee, Hard Choices, A Report on the Increasing Gap Between America's Infrastructure Needs and Our Ability to Pay for Them, Washington, D. C., 98th Congress, 2nd Session, Senate Print, 98-164, February 25, 1984, p. 57.

Evidence on the second point is furnished by research carried out by F. Jay Cummings.⁶ Cummings concludes that total state and local tax bills for the residents of Dallas, Houston and San Antonio are usually lower than those for other cities. Specific evidence that he presents, reproduced here as Table 3, shows that state and local tax bills for the residents of Dallas are generally the lowest of all 30 cities that he investigated. His data refer to tax rates as of 1978 and to city rather than metropolitan area taxes. However, more recent data show that Houston's state and local taxes per capita as of 1981 remained low relative to those of most large cities,⁷ and presumably the Dallas experience parallels that of Houston. It also seems plausible that taxes for metropolitan areas as a whole parallel those of their major central cities. No doubt, the absence of state income taxes is a major factor in the relatively low overall state and local tax burden for the residents of Texas. The relatively low burden likely still holds despite recent "temporary" increases in state sales and gasoline taxes for much of 1987.⁸

Coverage of Remainder of Report

Following this introductory section, Part II develops information on financial devices that can be used to raise needed highway revenue, and projects expected revenue that can be obtained under each device. Because California is a trend-setting state, considerable attention is devoted to its current experience in highway finance and policy, with results drawn on both in Part II and in an appendix to this report. A bibliography concludes the report.

The projections of Part II, of course, are estimates, and in some cases, relatively crude estimates; nevertheless, they should be useful in gauging potential sources of revenue to help close the "Mobility 2000" funding gap. The development of the projections is documented in some detail, and should point the way to more refined estimates, as needed.

TABLE 3
OVERALL STATE AND LOCAL TAX BILLS, 1978

City	Household income					
	\$15,000		\$22,500		\$30,000	
	Dollars in taxes	Percentage of income in taxes	Dollars in taxes	Percentage of income in taxes	Dollars in taxes	Percentage of income in taxes
Atlanta	1,302	8.68	2,122	9.43	2,962	9.87
Baltimore	1,806	12.04	2,844	12.64	3,833	12.78
Boston	2,277	15.18	3,522	15.65	4,862	16.21
Chicago	1,367	9.11	2,030	9.02	2,637	8.79
Cleveland	1,087	7.25	1,709	7.60	2,344	7.81
Columbus	926	6.17	1,477	6.56	2,025	6.75
Dallas	584	3.89	841	3.74	1,083	3.61
Denver	1,361	9.07	2,188	9.72	2,994	9.98
Detroit	1,643	10.95	2,666	11.85	3,598	11.99
Honolulu	1,352	9.01	2,336	10.38	3,248	10.82
Houston	604	4.03	864	3.84	1,103	3.68
Indianapolis	1,256	8.37	1,884	8.37	2,483	8.28
Jacksonville	545	3.63	837	3.72	1,079	3.60
Kansas City	1,123	7.49	1,729	7.68	2,338	7.79
Los Angeles	631	4.21	1,200	5.33	1,862	6.21
Memphis	803	5.35	1,123	4.99	1,388	4.63
Milwaukee	2,001	13.34	3,186	14.16	4,431	14.84
Nashville	713	4.75	989	4.40	1,209	4.03
New Orleans	606	4.04	1,044	4.64	1,426	4.75
New York City	1,940	12.93	3,229	14.35	4,730	15.77
Philadelphia	1,973	13.15	2,937	13.05	3,817	12.72
Phoenix	1,294	8.63	2,031	9.03	2,830	9.43
Pittsburgh	1,512	10.08	2,246	9.98	2,918	9.73
St. Louis	1,093	7.29	1,679	7.46	2,264	7.55
San Antonio	640	4.27	931	4.14	1,200	4.00
San Diego	642	4.28	1,222	5.43	1,876	6.25
San Francisco	667	4.45	1,247	5.54	1,920	6.40
San Jose	808	5.39	1,447	6.43	2,168	7.23
Seattle	862	5.75	1,240	5.51	1,573	5.24
Washington, D.C.	1,384	9.23	2,355	10.47	3,347	11.16
Thirty-city median	1,108	7.39	1,719	7.64	2,341	7.80
					3,283	8.21
					4,310	8.62

Source: Reproduced from Table 2 in F. Jay Cummings, "State and Local Tax Bills: How Do Residents of Large Cities Fare?", Texas Business Review, Jan.- Feb., 1982, p. 35.

The coverage of the financial devices can be outlined as follows:

- I. Road Use Direct Charges
 - A. Toll Road Revenue
 - B. Electronic Road Pricing
- II. Joint Public-Private Financing
 - A. Development Impact Fees
 - B. Benefit Assessment Districts
 - C. Leasing or Sale of Development Rights or Air Rights
 - D. Developer Contributions Through Negotiations
- III. Parking Fees, Fines and Taxes
- IV. Local Option Motor Fuel Taxes
- V. Local Sales Taxes
- VI. Property Taxes
- VII. Vehicle Registration Fees
- VIII. New Types of Taxes and Revenue Sources
 - A. Payroll tax
 - B. Aviation fuel tax
 - C. Lottery
- IX. Borrowing Strategies

The organization of these categories represents a blending of several criteria, including directness of charges, likely feasibility and degree of innovation. Thus, the direct beneficiaries of highway improvements are highway users, with toll road pricing involving the most direct charge for use, followed by gasoline taxes, parking fees and fines, and registration fees for vehicles. But an improved highway system also implies benefits for developers and land owners whose land is on or near highways, yielding the rationale for such items as benefit assessment districts and expanded property taxes. Finally, all residents of a region with improved access share in the benefits of that improvement, making the case for the use of the sales tax, a payroll tax and a lottery as a source of revenue for highways.

A variety of political and administrative considerations affect the likely feasibility of various financing mechanisms. Certainly, borrowing strategies, which take advantage of institutional rules to maximize revenue, will be widely acceptable, since no taxation is involved in their use. Costs that fall on non-local residents, such as tolls on toll roads serving interstate traffic, will be popular. "Indirect" charges that are a component of a much larger cost item, such as impact fees, gasoline taxes and sales taxes, will have appeal, politically. Property taxes, on the other hand, because of their high visibility and discreteness of collection, are likely to be resisted.

Finally, a major criterion guiding the efforts of this project was the investigation of relatively new methods of highway finance, accounting for the prominence given to toll roads, particularly electronic road pricing, and to charges based on the costs of increased traffic generation or to the capturing of some gains in land values due to new highways.

In the body of this report, each of the financial mechanisms in the outline above will be covered, in turn. Coverage will consist of an overview of the device; when appropriate, additional discussion of the device, including both general information and case studies; revenue implications of the device for NCTCOG area highway construction; and a list of citations documenting information sources.

Each overview covers the following topics: definition of the device; examples of its use; information on financial results of its use; and major issues involved in its use, including legal-administrative, political and economic issues.

Revenue Implications

Table 4 summarizes the key results of this study by exhibiting the revenue implications of each financial device, described in detail in the main body of this report. A number of items should be noted here, however, to clarify the entries in Table 4:

- (1) The geographic coverage aimed at in each case is that of the NCTCOG transportation planning area, which includes all of Dallas and Tarrant Counties, most of Collin and Denton Counties, and small sections of the other counties to the east and south of Dallas County, and to the west and south of Tarrant County.⁹ For some of the financial devices, because of data constraints, the geographic area referenced consists only of the four counties: Collin, Dallas, Denton, and Tarrant; however the geographic and economic coverage of those counties corresponds quite closely to the NCTCOG planning area.
- (2) Revenue figures are in "real" dollars as of the current price level, so they are directly comparable. No adjustment for inflation is necessary.
- (3) The projection period is from 1986 to the year 2010, a total of 24 years. In effect, this allows an additional 10 years to implement the goals of "Mobility 2000".¹⁰
- (4) In obtaining each projection, the current level of annual revenue was estimated, and then current increments to that level were inferred under various scenarios. In turn, each current increment was multiplied by 24, the span of years from 1986 to 2010, to yield a "low" estimate -- the "Minimum Growth" case of Table 4. The "high" estimate, or the "Normal Growth" case of Table 4, was then obtained by multiplying the "low" figure by 1.5, to yield 36 times the annual figure. The estimate for 1.5 is based on a projection of growth in real income for the Dallas-Fort Worth metroplex from 1986 to 2010, which essentially involves a doubling of income. (To be precise, Year 2010 income/Year 1986 income equals 2.13.)¹¹ An "average" figure for the period is then a "halfway" figure, or 1.5, setting the base year value at 1.0 and the terminal year value at 2.0, and assuming linear growth. Hence, accounting for "normal growth" in income, and in income related measures, is obtained by scaling base year entries by 1.5.
- (5) In comparing low and high projections, note that multiplication of the "current level" annual figure by 24 yields a projection that assumes the current level of revenue is unchanged. The result furnishes a useful benchmark. But in some cases, the current level is based on a total, and in some cases, the current level is based on an increment accounting for an annual change or amount of growth. The two sets of numbers are fully consistent only if there is a proper accounting for growth, as occurs in the "high" projections, which can be viewed as the

TABLE 4

SUMMARY OF REVENUE ESTIMATES

Source of Revenue	Estimated Total Revenue Increment 1986-2010 in Millions of Dollars *	
	"Minimum Growth" Case (low)	"Normal Growth" Case (high)
I. ROAD USE DIRECT CHARGES		
A. <u>Toll Road Revenue</u>		
Increased tolls, per mile of new tollway	31	47
per 50 miles of new tollway	1560	2340
Increase current toll from 5¢ to 10¢		
per mile of existing tollway	49	74
B. <u>Electronic Road Pricing</u>		
1¢ per vehicle mile of travel (VMT)		
on freeways	2880	4320
1¢ per VMT of peakload on freeways	1152	1728
II. JOINT PUBLIC-PRIVATE FINANCING		
Charging For Costs of Increased Traffic		
and/or Capturing Some of Land Value		
Appreciation From New Highways		
A. <u>Development Impact Fees</u>		
Residential, \$100 per unit	177	265
Office, \$1 per square foot	312	468
Retail, Commercial \$1 per sq. ft.	240	360
Industrial, 20¢ per square foot	72	108
	<u>801</u>	<u>1201</u>
B. <u>Benefit Assessment Districts</u>		
Limited to Dallas CBD	204	306
Other Areas	276	414
	<u>480</u>	<u>720</u>
C. <u>Leasing or Sale of Development Rights</u> <u>or Air Rights</u>	500	750
D. <u>Developer Contributions Through Negotiations</u>		
Transportation corporations, ad hoc		
negotiations, contributed right of way, and		
infrastructure	500	750
Totals: There is overlap in the coverage of these cases, so if all were implemented, the totals would be lower, probably:	1500	2250
Additional Note: Relatively low fees and rates were employed in above estimates. It would be possible to consider doubling those fees and rates to yield:	3000	4500

*Note: These are selected from a wider range of estimates presented in the body of this report, with the aim of "reasonableness" of estimates.

TABLE 4 (continued)

SUMMARY OF REVENUE ESTIMATES

Source of Revenue	Estimated Total Revenue Increment 1986-2010 in Millions of Dollars	
	"Minimum Growth" Case (low)	"Normal Growth" Case (high)
III. PARKING FEES, FINES AND TAXES		
A. <u>Minimum Estimate</u> - moderate expansion of metering in Dallas, none in Fort Worth	12	18
B. <u>Maximum Estimate</u>	600	900
IV. LOCAL OPTION MOTOR FUEL TAX		
A. <u>Local Excise Tax</u> 1¢ per gallon	480	720
2¢ per gallon	960	1440
B. <u>Local Sales Tax on Motor Fuel</u> 1% tax	360	540
V. LOCAL SALES TAX		
A. <u>Share of DART 1% Sales Tax</u> one-twentieth share to highways	186	281
B. <u>General Sales Tax</u> (local 1% rate) add 0.25% for highways	1710	2565
C. <u>Expand Sales Subject to Sales Tax from 30%</u> <u>to 100%, on additional 70% subject to tax</u> apply 0.10% to highways	1620	2430
apply 0.25% to highways	4050	6075
VI. PROPERTY TAXES		
A. Increase County Property Taxes by 5%	192	288
B. Bring County Road and Bridge Property Tax to State Average	194	292
C. Appraise and Tax Motor Vehicles in County Property Tax, appraised value per vehicle = 1736	158	237
D. Increase City Property Taxes by 5%	633	950

TABLE 4 (continued)

SUMMARY OF REVENUE ESTIMATES

Source of Revenue	Estimated Total Revenue Increment 1986-2010 in Millions of Dollars	
	"Minimum Growth" Case (low)	"Normal Growth" Case (high)
VII. VEHICLE REGISTRATION FEES		
A. <u>General Registration:</u> Payments to counties in proportion to revenues paid	437	655
B. <u>County Road and Bridge Fee:</u> Increase registration fee from \$5 to \$10	350	525
VIII. NEW TYPES OF TAXES AND REVENUE SOURCES		
A. <u>Payroll Tax</u>		
0.1% tax on payrolls	720	1080
0.3% tax on payrolls	2160	3240
B. <u>Aviation Fuel Tax</u>		
1¢/gallon	168	252
2¢/gallon	336	504
C. <u>Lottery</u> - (All net proceeds to highways)	890	1335
IX. BORROWING STRATEGIES		
Arbitrage Under New Federal Tax Law	60	60*
Arbitrage Based on Return to Earlier (in force as of 1986) Legal Provisions	240	240*

* Based on \$6 billion NCTCOG revenue gap; hence, high and low values here are the same.

result of "normal" growth. To expand on the point: sales tax revenue is based on current total sales, which if unchanged, imply zero growth in the Dallas-Fort Worth economy. In contrast, impact fee estimates assume impact fees are imposed on new construction, which in turn implies that recent growth rates continue unchanged.

- (6) The timing of revenues collected has not been addressed beyond the implicit assumption that current annual revenues continue at the same rate, or alternatively, increase in linear fashion. However, if revenue collection is subject to time differences, interest rates and discounting come into play: a dollar today is worth more than a dollar tomorrow, and the difference depends on the interest rate. Revenues collected early are worth more than revenues collected late. Hence, the flow of revenues can greatly affect the real level of total revenues collected. This issue is addressed in this report, in part, by the consideration of borrowing strategies at the conclusion of the report. However, additional work addressing this issue would be worthwhile.
- (7) In Table 4, there is overlap in some of the cases (in particular, see the figures on joint public-private financing). Of more importance, it is hardly likely that all, or even a large number of the scenarios will be implemented jointly. However, the results do suggest that a judicious mix of several of the financial devices should yield enough returns to close the revenue gap. In particular, some sense of the magnitude of prospective revenue under each of the projections can be obtained by selecting a "most reasonable" revenue scenario for each financial device and then obtaining the revenue total. Admitting the relative arbitrariness of the approach, the enumeration on the next page exemplifies the results that can be obtained in this manner. The scenario employed for each case is shown in brief fashion. From the enumeration it can be seen that the combination of scenarios selected, even for the low (or minimum growth) case, yields revenues above the \$6.4 billion needed to close the "Mobility 2000" revenue gap.

Part II of this report, which follows the present introductory section, consists of a detailed discussion of the financial devices, covering each in turn.

Source of Revenue (Financial Device)	Scenario	Revenue in Million Dollars	
		Low	High
I. Road Use Direct Charges	25 miles of new tollway	780	1170
II. Joint Public-Private Financing	Use all options recognizing overlap	1500	2250
III. Parking Fees, Fines and Taxes	Half of maximum estimate (III B)	300	450
IV. Local Option Motor Fuel Taxes	Local fuel tax at 1¢ per gallon	480	720
V. Local Sales Taxes	Add 0.125% for highways	855	1283
VI. Property Taxes	Use all options	1177	1767
VII. Vehicle Registration Fees	Use all options	787	1180
VIII. New Types of Taxes and Revenue Sources	Aviation fuel tax at 1¢ per gal.	168	252
	Lottery - half of proceeds	445	668
IX. Borrowing Strategies	New federal tax law (low), partial return to old law (high)	<u>60</u>	<u>120</u>
Total		6552	9860

Notes to Introduction and Summary

1. North Central Texas Council of Governments, Mobility 2000: The Regional Transportation Plan for North Central Texas, Arlington, Texas, May, 1986, 7.
2. David J. Forkenbrock and David J. Plazak, "Economic Development and State-Level Transportation Policy", Transportation Quarterly, Vol. 40, No. 2, April, 1986, 143-157. Also see David J. Forkenbrock, "Highway Revenues and Expenditures: Some Emerging Policy Directions at the State Level", in Lester A. Hoel, Editor, Innovative Financing For Transportation: Practical Solutions and Experiences, Office of the Secretary of Transportation, U.S. Department of Transportation, Washington, D. C., April, 1986. (DOT-1-86-20).
3. Natalie McConnell-Fay "Tackling Traffic Congestion in the San Francisco Bay Area", Transportation Quarterly, Vol. 40, No. 2, April, 1986, 159-170.
4. Transportation Research - A, General, Vol. 20A, No. 2, March 1986, Special Issue Devoted to Road Pricing.
5. Peter L. Shaw, "The Surface Transportation Assistance Act of 1982: Short-term Hopes and Long Term Implications," Transportation Quarterly, Vol. 40, No. 3, July 1986, 411-432.
6. F. Jay Cummings, "State and Local Tax Bills: How Do Residents of Large Cities Fare?" Texas Business Review, Vol. 56, No. 1, Jan., 1982, 34-39.
7. U.S. Bureau of the Census, Statistical Abstract of the United States, 1984 edition, Table 485, "Estimated State and Local Taxes Paid by a Family of Four in Selected Large Cities, by Income Level: 1981," p. 302.
8. In 1986, in response to fiscal concerns, the Texas Legislature increased state sales taxes from 4.15 to 5.25 cents per dollar of taxable sales, and gasoline taxes from 10¢ to 15¢ per gallon, for the period Jan. 1 to Aug. 31, 1987. Many observers expect these increases to be extended beyond August 31, 1987, with increases in other taxes possible. It nevertheless seems plausible that total state and local taxes will remain below levels elsewhere, given an apparent reluctance to institute state income taxes.
9. The NCTCOG transportation planning area is shown in a map appearing in North Central Texas Council of Government, Mobility 2000; that planning area is essentially the same as the NCTCOG policy planning area, with the later area shown in North Central Texas Council of Governments, Population and Employment Projections by City, June 1984.
10. This assumption was suggested by NCTCOG.
11. Data Resources, Incorporated (DRI), Forecast of Revenues from the Dallas Area Rapid Transit Tax: State and Local Government Practice, May 1986, Tables 3 and 4. Some caution must be employed in using the DRI data, because many of their series build in a projection of inflation. Thus, for the year 2010, "nominal" income is projected as 7.235 the 1986 level, with 3.405 accounting for inflation, and 2.125 for growth in real income ($2.125 \times 3.405 = 7.235$).

PART II DETAILED DISCUSSION OF REVENUE RAISING FINANCIAL DEVICES

PART II: DETAILED DISCUSSION OF REVENUE RAISING FINANCIAL DEVICES

The Financial Devices

This part of the report discusses the financial devices that can be used to increase highway revenues, covering each device in turn. There are nine sections:

- I. Road Use Direct Charges
- II. Joint Public-Private Financing
- III. Parking Fees, Fines and Taxes
- IV. Local Option Motor Fuel Taxes
- V. Local Sales Taxes
- VI. Property Taxes
- VII. Vehicle Registration Fees
- VIII. New Types of Taxes and Revenue Sources
- IX. Borrowing Strategies

Each section begins with a one page overview or set of one page overviews describing each device or set of mechanisms subcategorized under each device. The overviews appear in distinctive single space format to set them off from the rest of the text. Each overview contains a definition of the device, examples of its use, information on the financial results of its use, and major issues involved in its use, including legal-administrative, political and economic issues. The overviews are followed by detailed discussions which contain general or background information, case studies, revenue implications, and a list of sources drawn upon in the discussion.

The "revenue implications" subsections exhibit estimates for current revenue, if any, that the device contributes for highway use in the NCTCOG planning

area, and potential current revenue on an annual basis. Then low and high estimates are obtained for total revenue over the period 1986-2010 by respectively multiplying current annual revenue by 24 and 36; the rationale for these multiplications is developed above in Part I. Table 4 of Part I summarizes the revenue increments achievable by employing each device, and is useful for comparative purposes. As noted on the basis of that table, and as developed in detail in this part of the report, the potential for closing the "Mobility 2000" revenue gap does indeed exist.

I. ROAD USE DIRECT CHARGES

I.A TOLL ROAD REVENUE

Overview

Definition

The use of revenues from the sale of bonds backed by tolls collected from the users of roads, tunnels and bridges to pay for these facilities. The toll revenues may be supplemented by public funds.

Examples

Dallas North Tollway, Dallas, TX
Richmond Expressway System, Richmond, VA
South Crosstown Expressway, Tampa, FL

Financial Results

The range of toll revenues for the examples above in 1984 varied from \$5.6 to \$20.7 million annually. Supplemental receipts from bond sales, investments, rentals and concessions, and miscellaneous bring the total revenues into the range of \$13.6 to \$32.3 million annually.

Passenger car rates per mile on rural toll roads typically are on the order of 2 cents per mile; urban toll roads often charge considerably more, ranging from 5 to 10 cents per mile. Generally, toll roads are considered to be substantial revenue producers. Overhead usually is low.

Major Issues

Legal/Administrative The establishment of a governing authority requires state-enabling legislation, but once in place, administration is generally efficient due to the authority's independent status. However, it is difficult in urban areas to control toll facilities that have access every mile or so.

Political Public acceptance is necessary for toll road use and such roads must serve high demand corridors and provide a faster and/or more convenient alternative to a free facility.

Toll road development, moreover, generally requires detailed advance planning and avoidance of competition with existing highway systems. Since most urban areas already have existing facilities, this often precludes a toll road.

Economic Toll road financing can be viewed as an efficient and equitable financial technique because it is a user fee that charges the direct beneficiaries for their use of the facilities, and it charges similar vehicles an identical charge.

I.B ELECTRONIC ROAD PRICING

Overview

Definition

Computerization and improved methods of communication make possible the electronic collection of toll information, with billing of road users at the end of a payment period (usually a month), in the same fashion as credit card billing.

Examples

- 1) Coronado Bridge "Automatic Vehicle Identification" (AVI)
Experimental System, California
- 2) Pilot study in Hong Kong, 1983-85

Financial Results

- 1) The Coronado Bridge system is an experimental project of the California State Department of Transportation. Bridge crossings are recorded electronically and vehicle owners are later billed for total crossings in a given period. Potential savings are 10% of toll collection costs by way of replacement of toll collectors, and considerable reduction in congestion because of minimal delay in passing through the toll collection point.
- 2) In the Hong Kong Pilot Study, there were a total of 200 zones, with vehicles charged electronically every time they crossed a zone boundary line. Tolls charged per zone ranged from 10¢ to \$1.50 (U.S. dollars); presumably, a typical trip involved crossing only a few zone boundaries. Results were deemed very successful, both in terms of reducing traffic congestion and raising revenue.

Major Issues

Legal/Administrative In the Coronado Bridge case, there have been some technical problems in fitting cars with electronic sensors. Billing also poses questions. Charges could be collected through credit cards, or if that fails, through adding costs to vehicle registration fees.

Political Privacy is an issue, given the collection of data on vehicle movements, particularly in the Hong Kong type of system. However, there was sensitivity to that issue in the Hong Kong experiment; for example, information listed on bills was limited if vehicle owners so requested.

Economic Toll authorities around the world have been investigating the potential for electronic billing for some time. Major use of the system seems likely soon. Hong Kong is likely to introduce a permanent system by the end of the decade. The Hong Kong system makes use of small, inexpensive, robust solid state sensors attached to cars, and inexpensive microcomputers to carry out the billing.

IA. TOLL ROAD REVENUE

Detail

General Information

Since 1916, the federal government with few exceptions has prohibited the levying of tolls on roads built with federal aid. Most of the 5,000 miles of toll roads, therefore have been funded through tax-exempt borrowing in the bond market.

It has been estimated that the collection of tolls costs on average 14 percent of revenues versus collection costs of 7 percent for highway user taxes for the average state. Additionally, capital costs can be raised 5 to 30 percent by having to finance debt through the municipal bond market.

Offsetting these costs are the benefits of (1) earlier construction of needed highways that otherwise would be delayed due to budget constraints and (2) a fairly certain revenue stream to maintain the roads. Despite these benefits, the Congressional Budget Office estimates that less than 10 percent of existing urban interstate highways could financially support a tollway, and this is considered an indicator of limited potential for new toll roads. Nevertheless, a number of toll roads, including the Dallas North Tollway, are currently financially successful.

C. Kenneth Orski argues that after years of languishing in semi-obscurity, toll roads are re-emerging as a serious fiscal alternative, even though modern toll roads require volumes of 50,000 vehicles per day. Such volumes now seem attainable on busy commuter highways. Thus, the Dulles Toll Road, paralleling the Dulles Airport access road in suburban Washington, D. C., had a daily volume of 60,000 vehicles within six months after opening. Further, most planned new

toll roads are commuter highways, including the Hardy Toll Road in Houston, the Jacksonville Expressway, the North Atlanta Toll Road and the Dallas North Tollway extension.

There are two proposed revisions of federal law that might make toll roads financially more viable. H. R. 4144, legislation submitted by the Reagan Administration, contains a provision that would allow federal funds to be used for new toll roads or for reconstructing existing toll roads. Federal financial participation of up to 90 percent would be allowed as per current law. Previously existing non-toll roads would not be eligible. Additionally, the bill would allow collection of tolls after all nonfederal obligations have been paid, subject to the revenue being used for toll road maintenance or other public highway construction projects.

More expansive legislation recently introduced would allow federal aid to be used both for new toll roads and existing roads constructed with federal aid. H. R. 3473 and S. 1488 allow toll revenues to be used after repayment of debt obligations for highway construction or for mass transit or bridges. Unlike the administration bill, however, federal financial participation would be limited to 50 percent of project costs.

Table 5 lists information on current U. S. toll roads by location, length in miles, average toll rate per mile for passenger cars, and number of vehicle miles as of 1983.

Case Example - Illinois

The Illinois toll highway system is made up of three toll roads consisting of 256 miles of roadway, excluding a toll road that Chicago operates separately. A new 17.5 mile toll road is scheduled for construction beginning in 1986 with its opening planned for 1988 or 1989.

TABLE 5

U.S. TOLL ROAD INFORMATION

State and Toll Facilities	Length in Miles	Passenger Car Average Rate Per Mile in Cents	Vehicle Miles in Millions As of 1983
Connecticut			
Connecticut Turnpike	129.0	2.2	2,018.9
Merritt Parkway	37.8	0.9	810.2
Wilbur Cross Parkway	26.6	1.3	
Delaware			
Delaware Turnpike-JFK Memorial Highway	11.2	6.7	155.4
Florida			
Airport Expressway	4.4	5.7	---
Beeline Expressway	17.4	2.9	---
Beeline East	15.0	1.3	---
Beeline West	9.0	2.2	---
Bucaneer Trail	15.9	9.4	---
East-West Expressway	2.0	12.5	---
Everglades Parkway	78.0	1.0	---
Florida's Turnpike	265.0	2.4	1,763.6
Holland East-West	13.8	1.8	---
South Dade	8.0	1.3	---
West Dade Expressway	50.0	1.8	---
Tempa South Crosstown	9.3	5.4	---
Illinois			
Tri-State Tollway	77.0	3.1	
Northwest Tollway	76.0	2.6	3,384.9
East-West Tollway	96.0	2.8	
Indiana			
Indiana Toll Road	156.9	3.0	766.3
Kansas			
Kansas Turnpike	236.0	2.8	592.4

TABLE 5 (continued)

U.S. TOLL ROAD INFORMATION

State and Toll Facilities	Length in Miles	Passenger Car Average Rate Per Mile in Cents	Vehicle Miles in Millions As of 1983
Kentucky			
Audubon Parkway	23.4	2.1	26.4
Blue Grass Parkway	72.1	1.8	119.7
Cumberland Parkway	88.5	2.3	62.2
Daniel Boone Parkway	62.7	2.2	70.7
Green River Parkway	70.2	2.1	69.7
Jackson Purchase Parkway	52.6	1.7	42.5
Mountain Parkway	---	---	123.1
Pennyrile Parkway	59.0	1.7	104.9
Western Ky. Parkway	137.0	1.6	182.5
Maine			
Maine Turnpike	106.0	2.5	537.1
Maryland			
JFK Memorial Highway	43.0	2.3	647.4
Massachusetts			
Mass. Turnpike	123.0	2.9	1,630.9
Boston Extension	12.0	6.3	---
New Jersey			
Atlantic City Expressway	44.0	2.3	528.0
Garden State Parkway	173.0	1.6	3,855.1
New Jersey Turnpike	118.0	2.3	3,205.5
New York			
Thruway			
Berkshire Section	24.0	2.1	
Erie Section	70.0	2.4	4,658.2
Main Line Section	465.0	2.0	
Ohio			
Ohio Turnpike	241.2	2.0	1,648.0
Oklahoma			
Cimarron Turnpike	67.7	2.1	
Indian Nation Turnpike	105.2	2.4	
Muskogee Turnpike	53.1	2.4	1,212.0
Turner Turnpike	86.0	2.3	
Will Rogers Turnpike	88.5	2.3	

TABLE 5 (continued)
U.S. TOLL ROAD INFORMATION

State and Toll Facilities	Length in Miles	Passenger Car Average Rate Per Mile in Cents	Vehicle Miles in Millions As of 1983
Pennsylvania Pennsylvania Turnpike	470.0	2.3	3,136.1
Texas Dallas North Tollway	10.0	5.0	194.5
West Virginia West Virginia Turnpike	88.0	4.3	299.7
<u>Others</u>			
New Hampshire Blue Star I-95 Turnpike	---	---	245.1
F.E. Everett Turnpike	---	---	414.2
Spaulding Turnpike	---	---	116.6
Virginia Richmond Expressway	---	---	92.7
Richmond-Petersburg Tpk.	---	---	676.6
Va. Beach-Norfolk Expwy.	---	---	405.8
Dulles Toll Road	---	7.0	---

--- Information not readily available.

Sources:

International Bridge, Tunnel and Turnpike Association (IBTTA), Toll Rates Survey: U.S. & Canada Roads, Washington, D.C., July 1985, and IBTTA, Turnpike Accident and Fatality Report, 1982-1983, Washington, D.C. April 17, 1984.

U.S. Congressional Budget Office, Toll Financing of U.S. Highways; Washington, D.C., October 1985, p. 46.

The Illinois toll road system is operated by a single agency, the Illinois State Toll Highway Authority, which is independent of both the federal and state departments of transportation. The Authority is fully mandated to build and operate toll highways in the state, including the power to issue and sell bonds to finance all costs associated with the toll highways. All bonds must be backed solely by projected toll revenue with no support by the state or any locality. (This is also the situation in Texas with the Texas Turnpike Authority). At the end of 1984, the Authority had issued \$628,450,000 in bonds since 1955 of which \$364,999,000 had been retired. Revenue information for calendar year 1984 includes the following:

Toll revenues	\$157,327,494
Revenues from concessions, interest, overweight tickets, miscellaneous	4,780,891
Total operating revenues	162,108,385
Total maintenance and operating expenditures	56,639,136
Net operating revenues	105,469,249

The net operating revenues are required by the bond resolution to be dedicated to five different accounts which are, in order of priority: Maintenance and operating, interest, interest reserve, sinking fund, and general reserve.

The general reserve fund is used to maintain and rehabilitate toll roads and accounted for \$58 million in expenditures in 1984. The Authority chooses construction companies through an open bidding system. Cost overruns have been kept quite small due to the expertise that the Authority has developed over 25 years of experience, close monitoring of construction and a set of incentives designed to keep the contractor on schedule. The incentives include \$5,000 a day in bonuses for up to 20 days early completion and \$15,000 a day in penalties for each day the project comes in late.

The enabling state legislation requires that the toll highways become free when all bonds and interest have been paid or the amounts necessary to do so have been put in reserve. The state department of transportation would then assume responsibility for the roads' operation and maintenance. This situation is not expected to occur before the year 2008.

Toll rates are set based on the annual rehabilitation plan of the Authority and on the semi-annual estimates of traffic engineering consultants. Revenues generated from tolls are invested in United States Treasury obligations.

Case Example - Florida

Florida has 13 toll roads which encompass 552 miles of highway, with the longest road, the Florida Turnpike, extending 321 miles. There is one additional toll road under construction which will add another 23 miles to the total.

There are nine management structures that operate the various toll roads, unlike Illinois where one authority operates the state toll system, with the Florida Department of Transportation (FDOT) operating the Florida Turnpike. The other toll road managers are composed of either counties or independent authorities created by state legislation.

Since 1955, bonds totaling \$1,013 billion have been issued in Florida for the financing of toll roads. Previously, once all indebtedness had been satisfied, a toll road became a free road in the state highway system. The Florida legislature changed this in 1985 so that tolls may be continued even after all obligations have been repaid. The resulting revenue may be used to build additional toll facilities or finance other transportation facilities.

Unlike Illinois or Texas, Florida's toll road bonds are backed by toll revenue and the full faith and credit of the state or county. This latter provision

increases the marketability of the bonds by reducing the risk of default and lowering financing costs. In essence, if toll revenue is not sufficient to pay off debt obligations, then state transportation funds may be used to make up the difference at the state level, and the county's portion of the state gasoline tax may be used at the county or authority level. In the worst case, the state's general revenues are available for emergency repayments.

In 1984, the financial situation for Florida's toll roads was as follows:

Toll revenues	\$120,285,000
Revenues from concessions, interest, overweight tickets, miscellaneous (excluding bond receipts)	39,020,000
Total operating revenues	159,305,000
Total maintenance and operating expenditures	36,908,000
Net operating revenues	122,397,000

The operating revenues have not been sufficient in recent years to pay off interest costs or for annual payments to retire the obligations. Thus, the pledge by the state and county to back debt repayment has been used by a number of toll managers. As of June 30, 1985, approximately \$175 million was owed to the Florida Department of Transportation and the counties. The FDOT has sought to put this into perspective by noting that it would cost \$2 billion to purchase the rights-of-way and construct the toll roads today and that future revenues are expected to increase as traffic increases over time. In addition, the alternative of increasing toll rates would likely lead to decreased traffic and reduced revenues.

Potential for Increased Revenue, Toll Roads

Per Mile of New Toll Road Constructed (with current tolls) The Dallas North Tollway is 10 miles in length and will add 7.4 miles shortly. Annual earnings currently more than cover annual costs, consisting of operating costs and interest on bond debt, which accounts for construction costs. The good

experience reflects high return on investment of revenue from the bonds. Annual costs per mile of tollway are approximately 1.3 million dollars per mile (covering both operating costs and interest on debt). It seems reasonable to assume that considerable expansion in toll roads can take place at that cost, with annual revenues at least covering annual costs (even though interest from investment will decline as new construction takes place).

The estimates here are based on the Texas Turnpike Authority's 1986 financial statement for the tollway. For the fiscal year ended June 30, 1986, costs and toll revenue were approximately in balance, as follows:

Toll revenues	-	\$13.4 million
Operating costs	-	\$ 3.4 million
Interest on tollway debt	-	\$10.2 million

Hence, given the 10 mile length of the tollway, both earnings and total costs are approximately \$1.3 million per mile. (Note that costs include interest but exclude principal.) However, the tollway also earned \$10.7 million from its investments, making it quite profitable - at least in 1986 (with a profit of \$10.7 million on total revenue of \$24.4 million). But earnings from investments can be expected to decline, both because some of those invested funds will be used to pay for extending the tollway, and because the new federal tax law will likely limit returns on investments made with bond revenue. To be cautious, it can be assumed that new tollways will earn no revenue on investment and will exactly pay for themselves at \$1.3 million per mile. This yields the following revenue estimates.

<u>Source of Revenue</u>	Revenue in millions of dollars			
	Current	Increment		
	Level	Annual	Projected over	
	(Annual Total)	Current Level	24 years Low - Annual x 24	to 2010 High - Annual x 36
<u>Additional Toll Roads at Current Tolls</u>				
Per mile of additional tollway	1.3	1.3	31	47
Per 10 additional miles	---	13	310	470
50 additional miles	---	65	1560	2340

It is worth noting that the Trinity Tollway, if built, will be 50+ miles.

Revenue Per Mile of Tollway with Increased Tolls The Dallas North Tollway charges passenger cars 5¢ per mile. Most rural tollroads charge passenger cars 1.5¢ to 3.0¢ per mile, with charges clustering around 2.2¢ per mile. Charges for trucks typically run 2 to 3 times the passenger car toll.

Some urban toll roads charge more than 5¢ per mile, including:

<u>Florida</u> -	Airport Expressway - 5.7¢
	Buccaneer Trail - 9.4¢
	East West Expressway - 12.5¢
<u>Delaware</u> -	JFK Memorial Hwy. - 6.7¢
<u>Massachusetts</u> -	Boston Extension of Mass Turnpike - 6.3¢
<u>Virginia</u> -	Dulles Access Toll Road - 7.0¢

If toll rates are raised, available evidence indicates some loss in traffic volume, so total revenue will not rise proportionately, although it will increase. The analysis runs as follows. From 1976 to 1982, a period of 6 years, average daily vehicle trips on the Dallas North Tollway increased from 51,900 to 85,500. The percentage increase was 65%. During that period, because of inflation, the real value of tolls collected per trip dropped by about 40%. On the basis of long term trends in use, the effect of the price drop was

established as leading to a 20% increase in vehicle use, with 37.5 per cent having been explained as due to the increasing time trend in use (that is, $1.65/1.375 = 1.20$). The time trend effect equaled about a 5 percent increase in use per year, presumably reflecting more intensive land use and trip generation, trip pattern change, etc. In 1982, the toll was doubled and vehicle trips decreased to about 78,000 as of 1985. If the trend had continued, vehicle trips in 1985 could be expected to have been around 100,000. The decrease between the expected value of 100,000 and the actual value of 78,000 was consistent with a doubling of price, given the originally established price effect. In technical terms, a price elasticity of -0.35 was estimated from the data, being consistent with both sets of changes. That is, the price elasticity estimate obtained was consistent both with the effect of the real drop in price in the earlier period, and that of the real increase in price in the later period. This price elasticity attributes greater impact to a price change than does an elasticity estimate of -.18 derived by Wilbur Smith and Associates in a 1985 study of the Dallas North Tollway. The consequence of the price elasticity estimate of -0.35 is that a 50 percent increase in price leads to only a 30 percent increase in revenue because of a decline in use of 13 percent (that is $1.5 \times 0.87 = 1.305$). Similarly, a doubling in price can be expected to lead to only a 57 percent increase in revenue. Given an estimated return of \$1.3 million per mile for a 5¢ toll, a 50 per cent price increase to a 7.5¢ toll will yield \$1.7 million per mile ($1.3 \times 1.305 = 1.7$) for a net gain of \$0.40 million. Similarly a doubling of the toll will yield a net gain of \$0.75 million. (Estimates were obtained throughout assuming a relation of the form $Q=KP^{-.35}$ where Q is quantity, P is price and K is a constant.) Summarizing these results then, the following estimates are obtained:

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u> <u>Total)</u>	<u>Current</u> <u>Level</u>	<u>24 years</u> <u>Low -</u> <u>Annual</u> <u>x 24</u>	<u>to 2010</u> <u>High -</u> <u>Annual</u> <u>x 36</u>

Increases in Tolls

Revenue per mile of tollway

- 5¢ toll	1.3	---	---	---
- 7.5¢ toll	---	0.40	9.6	14.4
- 10¢ toll	---	0.75	18.0	27.0

Note that the increments here should be added to the revenue increment per additional mile of tollway at a toll of 5¢ per mile. Thus, at 10¢, the total revenue increment for 24 years is $31 + 18 = 49$ (million dollars).

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IB. ELECTRONIC ROAD PRICING

Detail

Background

Attempts at road pricing experiments in the United States have not been encouraging. Thomas Higgins notes that starting in 1976, the Secretary of the U.S. Department of Transportation, William T. Coleman, wrote the mayors of several cities about the availability of a road pricing demonstration, involving window stickers or a license scheme. A number of the mayors rejected the idea outright, including the mayors of Rochester, N.Y., Atlanta, Seattle and Baltimore. The mayor of Baltimore wrote: "For a downtown area which is struggling to maintain its competitive position with suburban centers... with vast amounts of free parking, I am concerned over any proposal which would further weaken the position of Baltimore's downtown area." Only Madison, Wisconsin; Berkeley, California; and Honolulu were willing to entertain the idea. In all three cases that entertainment was short-lived, and the demonstrations were never carried out. In Berkeley, there was some distorted media attention which led many to believe that pricing would apply to all places and times, contrary to the view that free road use was a basic right. In general, rejection of the demonstration in the three cities was based on the perceptions that pricing would involve coercive interference with travel rights, harm to business and regressive impacts on the poor.

However, the public appears least resistant to road pricing when it is presented as a user fee to support roads, possibly taking the place of taxes. Electronic pricing has become feasible, and can also improve public acceptance by relating charges to peak load times and places. For that reason, in considering application to revenue needs in the NCTCOG area, there is focus on expressway travel, with particular attention to peak load travel.

Case Study: The Coronado Bridge Experiment

The California State Department of Transportation (CalTrans) is experimenting with a system called "Automatic Vehicle Identification" or AVI for short, in collecting tolls at the Coronado Bridge in San Diego County, California. The system consists of sensing devices attached to automobiles which return an electronic signal to a computer at the toll collection point. The computer identifies the signal as being from a particular car that is registered in the data bank. To register a vehicle for participation in the experiment, the vehicle owner must be willing to be billed for the charges that he incurs.

The advantages of this system for the vehicle owner is that it allows him to proceed through a toll collection point with minimal delay. The system has a potential capacity far above the 400 cars per hour per man rate of an individual toll collector, and the 600 cars per hour per automatic toll collector machine. The individual also has the benefit of paying a single bill, which alleviates the problems of carrying change or of waiting for a toll collector to make change.

A major prospective advantage of the system is that it has the potential for saving 10% per year in salaries of toll collectors, although this savings has yet to be demonstrated in the experiment. The final cost savings will be shown in an evaluation report due out during 1987. The second prospective advantage is that the system should substantially alleviate the congestion at toll plazas during peak hours.

The original cost of the experimental system will range somewhere between \$500,000 and \$800,000, excluding such items as additional lanes. The system

is under development by Science Applications International, which currently is carrying out accuracy tests on the system's operation. Attention is being directed to questions such as where in or on the automobile should the identification tag be placed? Other questions turn on the number and height of the transmitting antenna. Tests found that initially 13% of the target automobiles could not be fitted with the identification tag; over half of these cars had an iron compound in their windshields which upset the transmissions.

The questions of compliance with the billings has yet to be tested. One possible mechanism for billing is to place the charge on the customers' VISA and Mastercard accounts. Another possibility is to bill quarterly. For people who do not pay their bills, adding the costs to their vehicle registration fees is a possibility.

The question on the mix of AVI stations, automatic toll collectors, and regular toll collector stations has not been addressed. Neither has the cost of maintenance of the AVI system been estimated.

Case Study: Hong Kong Pilot Project

Over the period 1983-1985, the Hong Kong government commissioned a pilot study to examine the viability of electronic road pricing (ERP) in the territory. Dawson and Catling studied the workings of the project and concluded that ERP offers a highly efficient and equitable method of dealing with Hong Kong's intense traffic problems. The system reduces traffic on congested roads without penalizing drivers on uncongested roads, and gives people free choice in the selection of their trip routes.

The ERP system works as follows. A small, inexpensive, solid state device, termed an "electronic number plate", is attached to the underside of each vehicle. Once fitted, it requires no manual intervention and is maintenance free.

A series of charge zones is defined for the area covered by electronic user charges; in the Hong Kong urban area, there were approximately 200 zones. At each zone boundary crossing, an array of loops is buried in the road surface. As a vehicle passes over those loops, its electronic number plate is energized, and its crossing is recorded. The number plate transmits a string of data at each crossing, with a unique security coded identification employed for each vehicle. Tolls per zone range from around 10¢ to \$1.50 (in U.S. currency). Presumably a motorist will cross several zones during his trip, so single trip costs will be a sum of zone tolls. Tolls are cumulated by means of an inexpensive microcomputer system and at the end of the month, each vehicle owner is sent a statement of his road user charges, in a form similar to a credit card statement. Motorist needs for privacy are maintained by making listings on the statement of charges as circumscribed and limited as the user desires. The results have been accurate and reliable and Hong Kong expects to develop full scale use of the system by the end of the decade, starting with the registering of tolls at the entrances to tunnels.

Toll authorities around the world have been investigating electronic road pricing for some years. Benefits include reduction of traffic congestion, increased revenue collections, and reduced costs, with replacement of salaried toll collectors with automatic sensors. In addition, there are a number of likely side benefits, including the potential for automatic traffic data

collection. Such data will be useful both as real-time traffic flow information (for police and journey-to-work travelers) and as data to be used for analytic purposes, from setting signal times to making highway investment decisions.

Potential for Increased Revenue, Electronic Road Pricing

Weekday vehicle miles of travel (VMT) in a previous version of the NCTCOG planning area (The Intensive Study area) were 77.17 million per day, as of 1985, distributed as 33.76 million VMT on freeways, 36.32 million VMT on arterials and 7.09 million VMT on local roads. To obtain an annual figure, daily travel is multiplied by 340 (instead of the usual 365 days) accounting for somewhat lower volume on weekend days. To convert to levels corresponding to the current NCTCOG transportation planning area, volumes are multiplied by 1.05. Volumes per year then become 27.55 billion VMT in total, distributed as 12.05 billion VMT on freeways, 12.97 billion VMT on arterials and 2.53 billion VMT on local roads. If pricing were limited to the 12.05 billion VMT on freeways, the following revenue would be obtained:

<u>Revenue Source</u>	Revenue in millions of dollars			
	Current	Increment		
	Level	Annual	Projected over	
	(Annual Total)	Current Level	24 years Low - Annual x 24	to 2010 High - Annual x 36

Electronic Pricing

- At 0.1¢ per VMT on freeways	---	12.0	288	432
- At 1¢ per VMT on freeways	---	120.0	2880	4320
- If peakload travel on freeways is 0.4 of daily VMT, and the charge is 1¢ per VMT	---	48.0	1152	1728
- A charge of 5¢ per VMT during peak load travel, again assuming 0.4 of daily VMT on freeways is peak load.	---	240.0	5760	8640

Sources

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II. JOINT PUBLIC-PRIVATE FINANCING

Overview

The heading of Joint Public-Private Financing covers a number of current activities and suggested activities that have generated a great deal of interest. Those that are included in this review are cataloged under the subheadings of Development Impact Fees, Benefit Assessment Districts, Leasing or Sale of Development Rights or Air Rights, and Developer Contributions through Negotiations. In all these cases, there is a recognition of the interaction between new highway construction and real estate development. The recognition may take the form of a policy of charging for additional traffic or transportation capacity generated by new development; or it may take the form of a policy of capturing some of the benefits generated by new highways, particularly the benefits of land value appreciation. Although these policies have apparently differing justifications, and their implementation is carried out by many different mechanisms, their rationale seems basically the same: it is proper to hold private sector interests accountable for the benefits they derive from highway development, and for the costs they impose in taking advantage of those benefits. The sources behind this rationale include recognition of and response to current financial stringencies; growing acceptance of the "user pays" principle; the trend to privatization; and a recasting of the "no-growth" advocacy position. Although many developers and real estate owners have resisted contributing to highway funding, a number now accept that arrangement, and considerable revenue has been raised thereby.

II.A. DEVELOPMENT IMPACT FEES

Overview

Definition

Impact fees are fees imposed on private sector developers to mitigate the impacts of new projects on local services. Since new developments increase congestion, private developers should help pay for solutions which mitigate the congestion. As a condition for obtaining site plan approval or building permits, fees of various amounts can be imposed on a one time basis, or they may be imposed in the form of an annual tax. Both forms are usually based on the square footage of the new development. The actual size of the impact fee will vary based on percentage of total costs for which the private developers are to be held responsible.

Examples

San Francisco, CA (San Francisco County Board of Supervisors, Finance Bureau of the Public Utilities Commission). Sacramento, CA (Sacramento County Planning Department). Portland, OR (County Planning Commission, TRI-MET). Farmers Branch, TX (Richardson, TX is considering the introduction of impact fees.)

Financial Results

Revenue potential for transportation impact fees can be very substantial. This revenue can be generated on a one-time basis or can be generated over a number of years. The San Francisco program imposes a \$5 per square foot fee on a one-time basis and will have an estimated revenue potential of \$37 million once it clears legal hurdles hindering implementation. It should be noted that very high fees may have the undesirable effect of causing private developers to relocate or abandon plans or perhaps contest the fees in court. These effects could lower the financial benefits of the fees.

Major Issues

Legal/Administrative Local ordinances are required. These ordinances are subject to challenges from property owners and developers who claim they are being required to pay more than their fair share of the cost of transportation improvements. Negotiated requirements raise questions about conditions being attached to zoning approvals. Litigation questioning the legality of impact fees has taken over two years to resolve in San Francisco.

Political Developers and property owners contend the fees discourage growth and impose unfair economic burdens on them but not on earlier development projects. If the fee is applied retroactively to approved development plans it will be viewed as an unfair additional expense by earlier developers.

Economic It is equitable to make problem creators pay for the solutions of those problems. However, impact fees may not be efficient if they inhibit development, and high enough fees will do so. (If growth limitations are desired, high impact fees will serve well in achieving that end.) The fees are well suited to obtaining revenue for highway extensions and expansions.

II.B. BENEFIT ASSESSMENT DISTRICTS

Overview

Definition

A benefit assessment is a tax or fee placed on property within the boundaries of a district which has benefited from some particular improvements including transportation investments such as highways and transit systems. Benefit assessment revenue is used to pay for all or part of the cost of the specific improvement made within the district and can be used to secure and retire the bonds financing the improvements. Fee revenue may also be used to fund maintenance and operating costs. Special assessments may be either one-time or recurring charges.

Examples

Denver, CO (Rapid Transit District in Denver, Downtown Denver, Inc.).
Miami, FL (Dade County Transportation Administration). Los Angeles, CA
(Southern California Rapid Transit District). Houston, TX (Harris County)

Financial Results

Actual assessments are based on (a) annual costs of debt service or operations, and (b) estimates of the value of the benefits to the property located within the district - this is often done on a sliding scale, based on proximity to the improvements and expected increases in property values due to improvements. The range of fees typically runs from 5¢ to 45¢ per square foot for the annual assessments.

Major Issues

Legal/Administrative State enabling legislation is required before a transportation agency or other local government can levy special assessment fees. Intergovernmental agreements may be required for a transportation agency in order for it to receive assessment revenues. If sliding scales are used it is necessary to develop rational formulae for delineating the location of rate changes.

Political Capital costs may be more politically feasible than operational costs in gaining approval for benefit assessments. Developers and property owners may argue for lowering fee rates since it is difficult to determine special benefits (as opposed to costs). The method permits financing without creating a new area wide tax, which may be politically advantageous.

Economic Assessments employ the user fee principle: those who benefit pay and those who benefit most pay the most. Of course, those singled out as beneficiaries usually prefer the costs to be spread to the larger community. If beneficiaries do not think the improvements are worth paying for, then setting up districts can be postponed. Benefit assessment districts are usually employed in central business districts or transit station areas but could work with property owners and businesses on or near highways.

II.C. LEASE/SALE OF DEVELOPMENT RIGHTS OR AIR RIGHTS

Overview

Definition

Transportation agencies may lease or sell development rights for the space above or adjacent to their land holdings and facilities. They can lease space above rail and bus stations, and above highways. This space may be used to build hotels, office and retail facilities. Adjacent space can be offered to neighboring businesses interested in improving access to the transportation site.

Examples

Boston, MA (Massachusetts Turnpike Authority). Miami, FL (Office of Transportation Administration for Metropolitan Dade County). Sparks, NV (Nevada State Highway Department). Washington, D. C. (Washington Metropolitan Area Transit Authority). State of California (Caltrans-California Department of Transportation).

Financial Results

Leasing or selling air rights or development rights to adjacent space is a method of generating substantial amounts of revenue for transportation systems. It is usually deemed preferable to lease development rights rather than sell them. This provides continual income for the life of the lease rather than a one time payment. Funds can be used for operating expenses or to finance future capital investments. Whether sold or leased the development property should have the additional benefit of contributing to the property and/or tax base of the community.

Major Issues

Legal/Administrative The sale of development rights may require enabling legislation. Leases need approval of many governmental parties. Alternative proposals via competitive bidding legally may be required. If there are rent terms beyond a fixed sum, it is easier to negotiate leases based upon gross projected revenues rather than actually monitored profits.

Political Losers from any proposal requiring competitive bidding may litigate the transportation agency's decision to award the lease to another party. This can delay the project, raise costs and lower actual revenues. State laws and local laws may conflict in such cases. Area residents may oppose sales or leasing if they are not consulted on the design and impact of development. Community approval of the project may take many meetings.

Economic Large projects favor large developers and may be inaccessible to small and minority development groups without special consideration being given those groups. Development can benefit both employers and their employees by providing prime location real estate to developers, office and retail space to employers and transportation facilities to workers. Use has primarily been at transit stations, although some highway use has occurred.

II.D. DEVELOPER CONTRIBUTIONS THROUGH NEGOTIATIONS

MECHANISM (1) - LEASING OF LAND AT LOW RATES AND LAND DONATIONS

Overview

Definition

Leasing property may be one method to reduce costs of land acquisition for a transportation agency or government. Negotiated land leases are agreements between private developers/property owners and the transportation agency/local government under which land is leased for a nominal charge in order to allow construction of transportation facilities. It may also be possible for local governments and transportation agencies to successfully solicit donations of land from the private sector to permit transportation improvements to be made. A well organized and highly visible campaign can locate multiple donors of land who are willing to contribute some of their holdings.

Examples

Takoma, WA (Pierce Transit Planning Office). Phoenix, AZ (Phoenix Transit). Grand Rapids, MI (Grand Rapids Area Transit Authority).

Financial Results

The major benefit is the cost saving of not having to buy land or condemn land for transportation purposes. A combination of donations and long term leases at low rent can significantly reduce costs of highway construction in metropolitan areas. There are examples of leasing for 20 to 30 years at \$1 per year per parcel. But opponents to highway construction/expansion may limit use of the method.

Major Issues

Legal/Administrative For leases, transportation agencies need authority to contract with private property owners. There are no known legal problems with donations.

Political The approach necessitates close interaction with all parties involved in the leasing process. There is rarely any public opposition to leasing land. Acquiring land through donation requires exceptional persuasive powers and political sensitivity, particularly if more than one landowner has the needed property. Donations are unlikely to raise public opposition.

Economic The method is efficient, but can pose implementation problems. It is also equitable as donors or lessors are usually large landowners/developers who are providing a small portion of their holdings in order to increase the value of the rest of their property. Progress may be impeded by the high number of private parcels needed.

II.D. DEVELOPER CONTRIBUTIONS THROUGH NEGOTIATIONS

MECHANISM (2) - LEASE/SELL FACILITIES

Overview

Definition

Once a local government has full interest in a property it can dispose of any portions which are not needed for transportation purposes. Local governments and transportation agencies should consider vacant or under-utilized property as a potential source of revenue through sales or leasing arrangements with the private sector. For new or future development it may be desirable to plan for additional building space which can then be leased. It is normally preferable to lease rather than sell facilities unless government authorities can safely determine that such facilities will no longer be needed in the future. Funds are used to offset operating expenses of the leased facility.

Examples

Santa Cruz, CA (Santa Cruz Metropolitan Transit District). Fargo, ND (City of Fargo).

Financial Results

Leasing or selling facilities is a method of generating relatively modest amounts of revenue. Revenues depend on the availability of facilities which are under-utilized, and the local real estate market in that area. Private sector leasees agree to lease the facility for a given time period for a fixed rate and to pay for improvements to the property. Both parties determine how utilities are to be paid. In the cases cited, revenues roughly equalled operating costs in one case (Fargo) and were less than operating costs in another (Santa Cruz).

Major Issues

Legal/Administrative Transportation agencies and local governments need special authority to dispose of facilities no longer needed for transportation purposes. Revenue potential may be reduced by a need to turn a percentage over to UMTA or other government organizations if the projects to be leased were partially financed with UMTA or other government funds. UMTA, HUD and others have allowed such agreements, however.

Political Proposals to lease or sell transit facilities are not likely to be opposed by local community organizations. This type of revenue measure may slow down transportation funds from UMTA. In the North Dakota case it took four years to get UMTA funds released.

Economic When unneeded facilities can be leased or sold the private sector benefits by obtaining a facility it wants, the transportation agency or government receives additional revenue and citizens may receive additional services at no cost. All parties can benefit. There has been limited applicability to date in public transportation and the approach is likely to be more applicable to transit facilities than to highway facilities.

II. D. DEVELOPER CONTRIBUTIONS THROUGH NEGOTIATIONS

MECHANISM (3) - AD HOC NEGOTIATIONS

Overview

Definition

A variety of specific negotiations can be carried out between government agencies and private organizations, particularly developers. Government agencies can bargain using discretionary development approvals.

Examples

Three California cases - two in Southern California and one in Northern California - involve major developer contributions. Texas Transportation Corporations can be subsumed under this heading.

Financial Results

The California cases involved contributions ranging from \$60 to \$80 million. Of course, these occurred within the context of major developments, running around one billion dollars each. Hence, the level of contribution ran from 6 to 8% of the development cost.

Major Issues

Legal/Administrative There are a variety of legal constraints on local government negotiations regarding development requirements. This leads to the question "Why Not Buy and Sell Zoning...legally, that is?"

Political Private developers may be more experienced and sophisticated than public officials in the negotiation process, or at least members of the public may think so.

Economic The flexibility afforded by ad hoc bargaining may improve chances of working out an agreement acceptable to all parties.

II. JOINT PUBLIC-PRIVATE FINANCING

Detail

Background

There is growing interest and more important, stepped-up activity, under the heading of joint public-private financing of highways.¹

The reasons for this growth likely include the following.

- (1) Financial Stringency. In an era of fiscal restraint, both at the state and local level (e.g. California's Proposition 13) and at the federal level (e.g. Gramm-Rudman-Hollings), there is an increasing need for creativity in meeting revenue goals.
- (2) Demographic Changes. Population increase is approaching a zero-population-growth rate, greatly reducing overall interest in and pressure for new roads at the national level. Yet, in most large urban areas, population and industry continue their suburban shift, generating a discerned need for new highways in suburban locations.
- (3) User Pays Principle. There seems increasing recognition of the proposition that the user or beneficiary of a service ought to pay for that service. In highway finance, this involves a considerable shift from the view that the community at large ought to pay for highway facilities, a view that was a basic element of postwar policy, beginning with the Federal Aid Highway Act of 1956, which established the National Interstate and Defense Highway System.

It is plausible that the voting public has become increasingly disillusioned with a lack of accountability in general taxation-based financing, leading to the positive reception of the user-pays principle.²

- (4) Privatization. There is a general trend toward privatization, and to the extent that developers begin to play a direct role in highway planning and policy as a result of explicitly bearing some of the costs, the privatization motive may come into play in direct fashion.³
- (5) Modifying of No Growth Stance. Persons advocating the limiting or cessation of urban growth have recently tended to moderate and modify their position, viewing such devices as impact fees as more modest and realistic instruments to slow growth than the use of direct controls.⁴

There are some causal issues that should be addressed in considering joint public-private financing. Impact fees are a means of mitigating or compensating for the "negative" effects of new development, which adds traffic to the highway system and thus increases congestion and a need for increased government spending to ameliorate the congestion. However, new buildings typically will be built in response to new highways having been built, or because of changing economic circumstances making both highways and development worthwhile; that is, highways either cause development or both highways and development are caused by the same external source, but development, to proceed, must have the access furnished by highways. Benefit assessment districts, leasing or sale of development rights or air rights, and developer contributions through negotiations explicitly recognize this contribution of highways to land development and increased land value.⁵ New highways have caused development along or near those highways to become profitable, or more profitable than they were, by increasing access to the land along or near the highways. Hence, impact fees or benefit assessments can be viewed as a response to the same process. Of course, "costs" are seen as "negative" or "bad", and benefits are seen as "positive" or "good", but both perspectives might be viewed as somewhat

partial. It is presumed here that on balance, the benefits outweigh the costs, and further, that developer responses adding to "costs" are part of the movement to a long run equilibrium of traffic generation and development induced by new highways.

Many developers and real estate owners have resisted participating in the raising of highway revenue, seeing that participation as a form of legal extortion. However, there appears to be growing acceptance of the proposition that such participation may be the only means of building new highways that the private participants would like to see built. Acceptance is strengthened when costs can be passed on to tenants or consumers, which is often the case. In practice, private participation has resulted in a good deal of revenue for highways, which will be demonstrated below.

Footnotes

1. Useful reviews of both the literature and of activities appear in Lester Hoel, Innovative Financing for Transportation: Practical Solutions and Experiences, U. S. Department of Transportation, Washington, D. C., April, 1986 (DOT 1-86-20) and in C. Kenneth Orski, "Suburban Mobility: The Coming Transportation Crisis", Transportation Quarterly, Vol. 39, No 2, April 1983, 283-296.
2. Robert C. Schaevitz makes this point in Hoel, Innovative Financing, p. 173.
3. Orski argues that developers, landlord and employees are in far better position than public agencies to influence individual commuters' travel habits. (His paper in Hoel, Innovative Financing, pp. 3-31.)
4. James Duncan and Norman Standerfer, Impact Fees: The Changing Direction of Growth Management, Austin, Texas, November, 1985.
5. Orski points out that assessed value of property may not bear a relation to traffic generation ("Suburban Mobility..." p. 290). But such a nonrelationship is unusual; typically, value and traffic levels are highly correlated.

II.A. DEVELOPMENT IMPACT FEES

Detail

General Experience

The use of impact fees for highway financing is reputed to have been first employed in the fast growing areas of Florida and California (Schmidt, 1985). In addition to those states, current examples include Colorado, Maryland, New Jersey and Oregon (Orski, 1985, 289).

When first employed, impact fees were tied specifically to the impact of a particular development on traffic. But there has been some tendency to widen the geographic responsibility of private contributions, so the relationship between a given development's impact on traffic and the fee it is charged becomes fuzzy and diffuse. In California and Florida, the initial pattern prevails on the basis of court rulings that any fees levied on new development must be earmarked for purposes benefiting those who pay the fees (Orski, 1985, 291). In New Jersey, by contrast, developers pay fees related to state-wide highway development.

Impact fees will have greatest applicability and yield the highest revenue in areas with considerable new development. Hence, it is not too surprising that in the local financing of highways in California, impact fees tend to be used in growth areas, while local option sales taxes are used in stable areas.

The magnitude of fees charged can vary a great deal. But this is not surprising when land values are compared; land values in the central business district of large cities are some orders of magnitude above land values at urban peripheries. Thus, in reviewing California experience with impact fees, Reid and Winkler report that San Francisco charges \$5,000, Escondido charges no more than \$400 and Simi Valley charges only \$55 per 1,000 square feet of new office

space. In addition to differences in land values, differences in receptivity to growth probably play an important role, since areas resisting growth will tend to charge higher fees.

Fees can be charged annually or on a one time basis. Berkeley, California charges 20¢ per square foot of development for 30 years to cover "traffic system management plans". Cities charging a one-time fee include Irvine, at \$6 per square foot; San Francisco at \$5 per square foot; and Orange County at \$3.75 per square foot, all for commercial development.

Some fees are charged on the basis of trips generated, rather than on the basis of square feet of development, but usually there is a conversion rule that translates square feet into trips. Los Angeles is considering charging \$2,010 per evening rush hour trip generated by developments within the Coastal Corridor Transportation Plan area (Reid and Winkler, p. 194). This has been estimated to correspond to \$6.18 per square foot of office space, assuming that 1000 square feet of office space generate 12.3 trips and that one fourth of the trips occur in the evening rush hour. Further, Los Angeles plans to impose an impact fee of \$5,650 per peak hour trip generation for development within a six block area that runs along Wilshire Boulevard just south of UCLA. Orange County also uses a trip generation basis for some of its impact fees, in some cases charging as much as \$5,000 per peak hour trip generated.

Both costs borne by developers and their share of total project costs can be quite high. Orange County's major application of impact fees takes the form of "corridor fees" to be imposed on developments served by three new freeways - the San Joaquin Freeway, the Eastern Freeway, and a freeway paralleling the Santa Anna Freeway. The Irvine Company is the major developer in the area, and it seems likely it will pass the impact costs on to its customers. The corridor

fees are estimated to equal \$630 million, roughly half the costs of the new highways. (Orski's estimate is 60%, [1986, p. 35]; Straton's is 40% as the developer's share - see the appendix to this report.)

In Montgomery County, Maryland, developers have proposed an "impact fee district" to raise 50 percent of the cost (approximately \$75 million) of transportation improvements in a rapidly expanding part of the County. Annual fees will extend over 20 years, and the annual fee obligation will constitute a lien on the property.

Highway impact fees are not limited to charges on commercial and industrial land use. Orange County, for example, charges \$1,250 per new residential unit. More generally, some California cities have very detailed lists allocating particular levels of impact fees for very specific land uses, as shown in Table 6.

Local Application of Impact Fees

A number of cities in Texas have instituted capital recovery fees, a form of impact fees, usually for water and sewer lines. Most of the cities have relatively small populations, with Plano the largest city having a fee system in place. (For a detailed survey of Texas experience, see Pugh et. al.).

Plano uses "lot development fees" to account for the additional costs of increasing the capacity of water and sewer systems in response to increasing demand. Plano was one of the first of the local area governments to implement an impact fee system, and that system has yielded a moderate amount of revenue.

TABLE 6

TRAFFIC IMPACT FEES IN CALIFORNIA

City	Fee Description																								
Escondido	Traffic Impact Fee <table> <tr> <td>Residential</td><td>\$395 to \$790/DU</td></tr> <tr> <td>Commercial/Retail</td><td>\$800 to \$10,000/1000 sq.ft.</td></tr> <tr> <td>Offices</td><td>\$400 to \$1,800/1000 sq.ft.</td></tr> <tr> <td>Banking</td><td>\$1,200 to \$6,000/1000 sq.ft.</td></tr> <tr> <td>Industrial</td><td>\$60 to \$200/1000 sq.ft.</td></tr> <tr> <td>Automotive</td><td>\$1,200 to \$15,000/1000 sq.ft.</td></tr> <tr> <td>Recreational</td><td>varies</td></tr> <tr> <td>Restaurants</td><td>\$2,000 to \$12,000/1000 sq.ft.</td></tr> <tr> <td>Church</td><td>\$600/1000 sq.ft. of Main Sanctuary</td></tr> <tr> <td>Day Care</td><td>\$40/student</td></tr> <tr> <td>Elementary Sch/Jr. High</td><td>\$20/student</td></tr> <tr> <td>Hospital</td><td>\$400/1000 sq. ft. or \$60/bed</td></tr> </table>	Residential	\$395 to \$790/DU	Commercial/Retail	\$800 to \$10,000/1000 sq.ft.	Offices	\$400 to \$1,800/1000 sq.ft.	Banking	\$1,200 to \$6,000/1000 sq.ft.	Industrial	\$60 to \$200/1000 sq.ft.	Automotive	\$1,200 to \$15,000/1000 sq.ft.	Recreational	varies	Restaurants	\$2,000 to \$12,000/1000 sq.ft.	Church	\$600/1000 sq.ft. of Main Sanctuary	Day Care	\$40/student	Elementary Sch/Jr. High	\$20/student	Hospital	\$400/1000 sq. ft. or \$60/bed
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Lancaster	Traffic Signals Fee <table> <tr> <td>Residential zones</td><td>\$96/DU</td></tr> <tr> <td>Multiple Residential zones</td><td>96/DU</td></tr> <tr> <td>Commercial zones</td><td>2,181.95/gr.ac.</td></tr> <tr> <td>Industrial/Manufacturing</td><td>378.20/gr.ac.</td></tr> </table>	Residential zones	\$96/DU	Multiple Residential zones	96/DU	Commercial zones	2,181.95/gr.ac.	Industrial/Manufacturing	378.20/gr.ac.																
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Los Angeles	Traffic Impact Fee of \$2010/evening rush hour trip generated by a development within the Coastal Corridor Transportation Plan area Los Angeles Regional Transit District plans to impose a Tax Increment Financing arrangement on commercial properties near proposed metro rail subway stations.																								
Manhattan Beach	Parking-in-lieu fee for commercial developments in downtown business district @ \$15,000/required parking space (number of required parking spaces unspecified in materials received)																								
Orange County	Traffic Impact Fee for new freeway construction @ \$1250/new residential unit @ \$3.75/sq.ft. on new commercial space built within several square miles of the proposed San Joaquin Hills and Foothill/Eastern transportation corridor																								
Rancho Cucamonga	Street and Highway Systems Fee @ 1% of building valuation																								
San Diego	San Diego Transit traded density to certain developers for \$100,000 to help pay for the Mission Viejo rail line.																								
San Francisco	Traffic Impact Fee of \$5/sq.ft. of development on new downtown office construction to finance improvements to the City's public transportation system (imposed as of 1981).																								
Santee	Traffic Impact Fee of \$76/estimated trips for development + Traffic Signal Fee of \$6.67/estimated trips for dev.																								

TABLE 6 (continued)

TRAFFIC IMPACT FEES IN CALIFORNIA

Simi Valley Traffic Signal Construction Fee

Land Use	Fee
Single Family Detached House	\$44.50/Dwelling Unit (DU)
Condominium/Townhouse	22.50/DU
Mobile Home	11.00/DU
Apartment	12.50/DU
Hotel	47.00/room
Motel	45.50/room
Industrial	24.00/1000 sq.ft.
Warehouse	22.50/1000 sq.ft.
Light Manufacturing	18.00/1000 sq.ft.
Shopping Center:	
a. <50,000 sq.ft.	515.50
b. 50,000 to 99,000 sq.ft.	25,775 + \$188.50/sq.ft.>50,000
c. 100,000 to 100,999 sq.ft.	35,000 + \$186.00/sq.ft.>100,000
d. 200,000 to 499,999 sq.ft.	53,800 + \$120.50/sq.ft.>200,000
e. 500,000 sq.ft. +	89,950 + \$97.00/sq.ft.>500,000
Service Station	3,329.00/1000 sq.ft.
Drug Store	195.50/1000 sq.ft.
Discount Store	287.50/1000 sq.ft.
Supermarket	558.50/1000 sq.ft.
Convenience Market	2,570.00/1000 sq.ft.
Clothing Store	139.50/1000 sq.ft.
Hardware Store	228.50/1000 sq.ft.
Variety Store	64.00/1000 sq.ft.
Furniture Store	25.00/1000 sq.ft.
Department Store	113.50/1000 sq.ft.
Savings and Loan	271.50/1000 sq.ft.
Bank-Walk-in	752.00/1000 sq.ft.
Bank-Drive-in	854.50/1000 sq.ft.
Restaurant-Quality	250.50/1000 sq.ft.
Restaurant-High turnover/sitdown	732.00/1000 sq.ft.
Restaurant-fast food	2,461.00/1000 sq.ft.
Hospital	75.50/1000 sq.ft.
Nursing Home	12.00/1000 sq.ft.
Medical Office	334.00/1000 sq.ft.
General Office	55.00/1000 sq.ft.
Office Park	92.00/1000 sq.ft.
Research Center	41.50/1000 sq.ft.
Civic Center	111.50/1000 sq.ft.
Racquet Club	40.00/1000 sq.ft.
Medical Clinic	26.50/1000 sq.ft.

Stockton Traffic Signals District Fee (unspecified)

Yorba Linda Eastside Street Improvement Fee @ \$600/unit

Source: Gary J. Reid and Donald R. Winkler "User Fees Among Cities in Los Angeles County and The Rest of Southern California", a report to the Los Angeles Taxpayers Association, Aug. 6, 1986, pp. 195-6.

The pattern of fees charged in Plano, over time, is as follows:

FEE DEVELOPMENT	RESIDENTIAL	NONRESIDENTIAL
1978 (established)	\$50	---
1982	\$100	\$10 per 1000 sq. ft. (approx.)
1985	\$300	\$30 per 1000 sq. ft.

Fees were tripled in 1985, yet this has not increased revenue collected because of the recent slowdown in residential and commercial development. Despite the increase in rates, the Plano rate structure is now relatively low, compared to nearby cities, so this may be a feature that developers find attractive.

Both the cities of Richardson and of Farmers Branch are exploring the use of impact fees in transportation development. Richardson recently retained a consulting firm to explore the viability of such fees (the report was positive) and prepared a model ordinance to implement the fees. Farmers Branch has written and passed ordinances to charge impact fees for a number of infrastructure items (water and sewer facilities, landscaping and land improvements), as well as for transportation improvements. Of direct interest, Farmers Branch is planning to charge a one-time fee of 50¢ per square foot for new construction near the LBJ Freeway. This is a modest amount compared to some of the California fees noted above.

Potential for Increased Revenue, Impact Fees

In gauging the potential for increased revenue in the NCTCOG planning area, several sets of estimates must be developed under these general classifications: (1) amount of new development, by land use category, and (2) plausible levels of impact fees for each of those categories. Estimates under classification (1) were developed here by drawing on a number of sources. Two important sets of data derived in this process appear as Tables 7 and 8, respectively. Table 7

TABLE 7

OFFICE SPACE DATA, DALLAS MARKET, EARLY 1986

Section	OFFICE SPACE IN MILLION SQUARE FEET			OFFICE SPACE AVAILABLE FOR RENT, EARLY 1986				Percent of Existing Space that is Occupied
	Total	Existing	Under construction or Planned	Total	Existing	Under construction	Proposed or Planned	
(1) CBD	49.252	33.658	6.394	17.241	5.638	3.803	7.800	83.25
(2) Oaklawn-Love Field	8.350	5.631	1.308	4.410	2.243	783	1.383	60.16
(3) North Central Corridor	11.557	9.054	1.678	3.474	1.569	1.080	0.825	82.67
(4) North Dallas (near-North Side)	3.082	2.892	0	0.762	0.572	0	0.190	75.27
(5) Stemmons Corridor	14.213	9.702	0.160	6.706	2.210	0.145	4.351	77.22
(6) LBJ Corridor	23.162	18.370	2.514	6.210	3.454	2.059	0.698	73.19
(7) Far North Dallas	14.054	10.495	1.605	5.572	2.813	1.345	1.415	73.20
(8) Far North Central Expressway Corridor	9.270	7.020	1.194	3.458	1.880	0.903	0.675	73.23
(9) Northeast Dallas Quadrant	2.391	1.953	0.404	0.726	0.356	0.337	0.034	81.79
(10) Northwest Dallas County	2.626	1.523	0.906	1.602	0.494	0.910	0.197	67.57
(11) Las Colinas	12.395	10.980	0.935	5.384	4.015	0.888	0.480	63.43
(12) The Mid Cities*	5.080	4.338	0.743	0.792	0.464	0.328	0	89.30
(13) Oak Cliff	0.523	0.523	0	0.121	0.121	0	0	76.87
(14) Far Southern Dallas County	0.470	0.320	0	0.277	0.126	0	0.150	60.52
TOTAL	156.427	116.460	17.840	56.734	25.956	12.580	18.198	77.71

* in Tarrant County. Data Source: Dallas Chamber of Commerce, Office Space Inventory, 1986

TABLE 8

INFORMATION ON DALLAS/FORT WORTH RETAIL SPACE USE

<u>Section</u>	<u>Gross Leasable Area in Thousand Square Feet, 1985</u>	<u>Percent Vacant</u>	<u>Shopping Center Expansion in Thousand Sq. Ft. Planned</u>	
			<u>1985</u>	<u>1986-87</u>
1 Dallas CBD	2,547.5	6.5	67.4	380.7
2 Dallas Northeast Quadrant	6,374.9	9.2	290.9	582.5
3A Far North Dallas	6,895.5	4.1	299.5	143.5
3B North Dallas	5,235.0	7.6	161.2	115.4
3C Dallas, Park Cities - OakLawn	2,922.8	3.7	299.6	621.9
3D Dallas, Love Field-West Dallas	195.4	11.7	25.0	39.1
4 Dallas, Southeast Quadrant	1,796.1	6.8	98.7	454.7
5 Dallas, Southwest Quadrant	5,531.9	11.8	264.8	508.2
6 Addison	1,216.6	16.9	34.8	144.0
7 Carrollton	2,006.2	22.7	395.1	1,329.8
8 De Soto/Lancaster	1,141.0	3.2	205.0	726.0
9 Duncanville	1,312.3	11.8	120.8	933.6
10 Farmers Branch	742.7	9.9	20.1	0.0
11 Garland	3,964.2	16.6	141.5	579.6
12 Grand Prairie	861.3	8.3	119.5	537.0
13 Irving	4,550.0	10.8	616.0	534.3
14 Mesquite	4,059.8	10.2	214.7	1,022.4
15 Richardson	3,824.7	10.3	93.0	271.5
16 Plano	6,753.8	18.8	1,596.8	1,418.4
17 Denton/The Colony	2,410.7	7.6	477.7	105.0
18 Lewisville	1,546.2	34.3	431.3	1,258.6
Dallas Total	65,888.4	11.0	5,973.3	11,706.1
19 Arlington	7,613.5	14.1	901.1	2,560.0
20 Bedford/Euless	1,728.0	21.5	393.1	598.6
21 Hurst	3,141.2	6.1	448.1	129.8
22 Fort Worth, Northeast Quadrant	1,152.5	6.4	161.3	829.6
23 Fort Worth, Northwest Quadrant	2,726.9	9.4	219.2	1,014.2
24 Fort Worth, Southeast Quadrant	1,112.0	9.8	100.0	272.4
25 Fort Worth, Southwest Quadrant	5,698.9	7.3	769.4	865.4
26 Fort Worth CBD	1,156.9	16.7	0.0	0.0
27 North Richland Hills	2,008.8	16.6	372.0	482.0
Forth Worth Total	26,338.9	11.5	3,364.2	6,752.0
Grand Total	92,227.3	11.2	9,337.5	18,458.1

Source of data: Sandra Albrecht, 1985 Dallas/Fort Worth Shopping Center Survey, Henry S. Miller Co. Realtors, Dallas, Texas, 1985.

exhibits estimates of office space in place and recent additions to office space, for the Dallas market, while Table 8 performs the same functions for retail space. In addition to Tables 7 and 8, information sources included the following. Information on Dallas area industrial space was obtained from the Dallas Chamber of Commerce, while information on Fort Worth-Arlington area office, commercial and industrial space was obtained from the Fort Worth Chamber of Commerce. Estimates from those sources were generally consistent with data on total office and industrial space obtained from several other sources (including Blacks Office Leasing Guide, The Swearingen Co., and the Joe Foster Co.). Residential unit estimates were obtained from a recent NCTCOG publication.

Information on the level of impact fees elsewhere, developed above, was drawn on to estimate plausible levels for the NCTCOG area. Those estimates consist of constant levels of fees, but it must be remembered that impact fees should vary within the NCTCOG area, depending on location. Hence, the estimates developed here must be viewed as preliminary and subject to considerable refinement. Those estimates are now presented by land use category.

Housing Units The estimated construction of housing units in 1985 was obtained from COG estimates prepared in March 1986, (Current Housing, 1986, estimates), which listed these additions to the housing stock by area:

City of Dallas	16,000
Remainder of Dallas Co.	17,000
Collin County	4,581
Denton County	6,780
Tarrant County	<u>29,381</u>
Total	73,742

If housing units are charged the following alternative levels of impact fees, the corresponding revenue alternatives are obtained.

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u>	<u>Current</u>	<u>24 years</u>	<u>to 2010</u>
	<u>Total)</u>	<u>Level</u>	<u>Low -</u>	<u>High -</u>
			<u>Annual</u>	<u>Annual</u>
			<u>x 24</u>	<u>x 36</u>
<u>Impact fees on Housing</u>				
at \$100 per unit	---	7.4	177	265
at \$250 per unit	---	18.4	442	664
at \$500 per unit	---	36.9	885	1327
at \$1000 per unit	---	73.7	1770	2655

Nonresidential Space The following estimates of new construction in 1985 were developed for each of the major land use categories, drawing on Tables 7 and 8, and on related data.

<u>Land Use Category</u>	<u>Million Square Feet</u>
Office, Dallas County	10
Total Office, NCTCOG Area	13
Retail-commercial, NCTCOG area	10
Industrial, NCTCOG area	15

Estimates of office space expansion were based on data obtained from Table 7 and from the Dallas and the Fort Worth Chambers of Commerce, including the former's Office Space Inventory. Retail space expansion in 1985 was 9.3 million square feet (Table 8), so the estimated total of 10 million square feet for retail-commercial includes other forms of commercial use.

Rents for industrial space typically average about one-fifth those for office space and impact fees are scaled accordingly. (The differences reflect both type of construction and location).

In considering the impact fee estimates, the following caveats should be noted. First, the potential for impact fees in the next several years will be limited

because of the current "glut" of space, particularly office space, and because the new federal tax law is likely to further inhibit new construction. Second, these figures assume all new construction will be charged the impact fee at the rates shown. As noted above, rates are liable to vary with location. Further, fees may be limited to areas experiencing considerable growth. Currently, the lower value for the impact fee seems more likely than the upper level. However, higher rates should be possible in the future. Subject to those caveats, the following estimates are obtained.

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u>	<u>Current</u>	<u>24 years</u>	<u>to 2010</u>
	<u>Total)</u>	<u>Level</u>	<u>Low -</u>	<u>High -</u>
			<u>Annual</u>	<u>Annual</u>
			<u>x 24</u>	<u>x 36</u>

Impact Fees on:

Office Space

13 million square feet per year:

per square foot fee, one time charge

\$1 impact fee	---	13	312	468
\$2 impact fee	---	26	624	936
\$5 impact fee	---	65	1560	2340

Retail, Commercial Space

10 million square feet per year:

per square foot fee, one time charge

\$1 impact fee	---	10	240	360
\$2 impact fee	---	20	480	720
\$5 impact fee	---	50	1200	1800

Industrial Space

15 million square feet per year:

per square foot fee, one time charge

20¢ impact fee	---	3	72	108
\$1 impact fee	---	15	360	540

Sources

Sandra Albrecht, 1985 Dallas/Fort Worth Shopping Center Survey, Henry S. Miller Co. Realtors, Dallas, Texas, 1985

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1439 Water and sewer line improvements, May 1983

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1526 Paving improvements, Nov., 1984

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Gary Reid and Donald Winkler, User Fees Among Cities in Los Angeles County and the Rest of Southern California, Los Angeles: LA Taxpayers Association, 1986.

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Richard Straton, Appendix to this report.

Texas Good Roads Transportation Association and Greater San Antonio Chamber of Commerce, Financing the Future: A Seminar Exploring Traditional and Innovative Transportation Funding Alternatives, San Antonio, Texas, Oct. 10, 1985.

Donald Winkler, Comparative Study of Business Taxation by Local Government in Southern California, Los Angeles: LA Taxpayers Association, 1984.

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City of Farmers Branch, 13000 William Dotson
Farmers Branch, TX 75381 (214) 247-3131

Swearingen Co., office space estimates, (214) 922-8700.

Comparison of Estimates of Building Space

Table 7 lists office space totals for the Dallas market in early 1986 as 116.5 million square feet, existing, and 17.8 million square feet, under construction. Black's Guide for fall, 1986 lists total Dallas-Fort Worth office space as 148.1 million square feet. The Swearingen Co. lists essentially the same total for 1986, with this breakdown:

Dallas Area -	129.5 million square feet
Fort Worth Area -	<u>18.7</u> million square feet
Total Metro Area -	148.2 million square feet

The Dallas area figure here seems basically consistent with that of Table 7, given completion of much of the construction under way earlier in the year. The Joe Foster Company lists total industrial space in the Dallas Fort-Worth area as 231.9 million square feet, which is approximately 1.5 times the total office space figure of Black's Guide and the Swearingen Company. This seems roughly consistent with the ratio of new industrial to new office space that was estimated in text for the NCTCOG area (15 million/13 million square feet or 1.15), which seems reasonable given the presumption that office space likely has been expanding somewhat faster than industrial space.

II.B BENEFIT ASSESSMENT DISTRICTS

Detail

General Experience

Benefit assessment districts can be viewed as devices to capture some of the benefits of highways which appear in the form of increases in private real estate values. Robert Schaevitz points out that the use of special assessment districts for a number of infrastructure investments (local roads, water and sewer improvements) is not new, and is sanctioned by law in a number of states. In most cases, the key point is the existence of demonstrable improvement to specific properties, implying a special rather than a general benefit. When the benefit conferred is not universally or equally shared by all properties within the given political jurisdiction, charging for the improvement is termed an assessment; when the benefit is more-or-less universally and equally shared, charging for the improvement is termed a tax. Often, simple formulas have been used to estimate the amount of benefits derived, such as charges based on square feet or front feet of a development. However, in many states, charges must be based on more precise estimates of benefits conferred, and further, can be independent of the costs of the improvement. A critical concern in establishing a benefit assessment district, then, is a good faith effort to establish a formula measuring benefits in an understandable, fair and consistent manner. The use of benefit assessment districts is often attractive to policy makers because it isolates potential opposition and makes use of the principle that the primary beneficiaries of public investment pay for at least a share of the benefits they have received.

Benefit assessment districts are often used to help finance downtown improvements, based on experience in Denver, Louisville, Minneapolis and

Portland, Oregon. They have been tied to rail transit benefits in Los Angeles, Atlanta and Miami. There have also been attempts to account for highway benefits in the Denver area, Albuquerque and Santa Fe.

Los Angeles is creating special benefit assessment districts around each of 17 stations on its planned rail transit line. Private assessments will cover 5 percent of the capital cost of the project. The Southern California Regional Transit District will charge 30¢ per square foot of space per year for buildings within each district. Office space rental in Central Los Angeles runs about \$25 per square foot, so the assessment is about one percent of rental value.

Downtown Denver's benefit assessment district charges properties an annual fee involving a sliding scale based on distance from the central transitway-pedestrian mall, which covers a 14 block area in the center of Denver.

Originally the district was established for the area between 15th and 17th streets along the length of the mall, and then in 1984, its coverage was expanded to embrace the area from 14th to 19th streets. Thus, a large portion of the CBD is included.

In Colorado, landowners are allowed to form taxing districts for the purpose of financing road construction on their land. In the Denver area, several of those districts have formed the Joint Southeast Public Improvement District to undertake a \$20 million privately funded program of highway improvements.

In Santa Fe, New Mexico, a benefit assessment district to account for parking improvements in the downtown area has been the subject of detailed planning studies. Serious consideration is also being given to a benefit assessment district to cover the costs of a new loop road and additional freeway ramps in a major commercial development center in Albuquerque. In the latter case, it was

estimated that all of the costs could be assigned to property owners in the center with considerable benefits left over. In the former case, the proposed charges to property owners amounted to approximately 5 percent of current rents. Further, all of the required assessments were below the cost of a parking space (calculated as \$6,000 in capital costs, which was treated as equivalent to \$753 per year, in turn implying an interest rate of about 12%.)

Local Applications of Benefit Assessment Districts

Benefit assessment districts in Texas are subsumed under the general heading of Public Improvement Districts (PIDs) which are authorized in the state by the Public Improvement District Assessment Act, Article 126j-4.12 of Vernon's Annotated Texas Statutes, originally passed in 1977 and amended in 1983. The use of PIDs in Dallas was initially entertained by the City Council in January, 1983. On April 2, 1983, the voters of Dallas approved the use of PIDs as an appropriate mechanism to fund special improvements. Dallas has not yet established any PID, but several requests are pending.

The Fort Worth City Council has approved a downtown tax assessment district covering a 140 block area. Funds will be used for sidewalk and street maintenance, landscaping, promotion, transportation, security, parking and management. The first year's budget is \$742,000 (Dallas Morning News, 7/23/86.)

In Texas highway finance, Road Utility Districts (RUDs) and County Road Districts (CRDs) can be viewed as variants under the heading of Benefit Assessment District. Both collect revenue from beneficiaries of road construction within a well-defined district to pay for that road construction. To create a RUD, a petition must be signed by 100 percent of the landowners within a proposed district; the petition is submitted to the Highway Commission, which then creates the RUD. The RUD can acquire, construct and improve roads,

and pay for that activity by special fees assessed by the district, or it may issue bonds to be paid for by levying an ad valorem tax. A CRD works within the framework of the County government. The County Commissioners' Court legislates the area to be included and serves as its governing body. It issues bonds to pay for the building of roads and pays for them by an ad valorem tax on all taxable property within the district (Bahar Norris, "Road Utility Districts", North Central Texas COG, June 3, 1986.)

The RUD and CRD can be viewed as benefit assessment districts because they pay for the special benefits accruing to the members of their district. However, they differ somewhat from the cases described above because they levy taxes as well as assessments (in the case of RUDs), which could be viewed as merely a question of semantics. In addition, RUDs are voluntary associations. Hence, it could be argued there is some overlap of categories: RUDs and CRDs can be viewed as classifiable under both benefit assessment districts and property taxes; RUDs can also fit under the heading of Developer Contributions Through Negotiations. As indicated earlier, there are a great many financing mechanisms, and consequently, classification systems for them will not be watertight.

Potential for Increased Revenue, Benefit Assessment Districts

Benefit Assessment Districts typically collect revenue from existing as well as new construction in high growth areas, with growth presumably related to improved transportation facilities. That structure of assessments is assumed in the following calculations.

Office rental value asking prices in the central business district of the city of Dallas are about the same level as those in Los Angeles, at \$25 per square foot, while outlying area asking price rentals range from about a third to a

half of the CBD levels (\$8 to \$12). However, because of the current "glut" of space, actual rentals, accounting for concessions, are at a much lower rate. Currently, 15¢ per square feet per year might be "most reasonable" for CBD benefit assessment, applying the Los Angeles ratio of assessment to rent. However, a somewhat higher ratio can be expected in the future as the glut of floor space is dissipated; further, a higher ratio is also possible, as in the Santa Fe case (5% was the ratio derived there).

Two cases can be considered, drawing on the data of tables 7 and 8:

- (1) Benefit assessment districts limited to the Dallas CBD at 20¢ per square foot, applied to 40 million square feet of office space, existing or under construction, and to 2.5 million square feet of commercial space.
- (2) Benefit assessment districts for high growth areas other than the Dallas CBD, including the North Central Expressway Corridor, the LBJ Corridor, and the Las Colinas and Mid-Cities-high growth areas, at 10¢ per square foot, applied to approximately 70 million square feet of office space, existing or under construction, and to 45 million square feet of commercial space.

Revenues obtained under those cases are as follows:

<u>Source of Revenue:</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	Level	Annual	Projected over	
	(Annual	Current	24 years to 2010	
	Total)	Level	Low-	High-
			Annual	Annual
			x 24	x 36
<u>Benefit Assessment Districts</u>				
(1) Dallas CBD	---	8.5	204	306
(2) Other high growth areas	---	11.5	276	414
Total		20.0	480	720

Sources

City of Denver, Colorado, Documents on 16th Street Mall:

Ordinance #575, Series of 1983, Creation of District for 16th Street Pedestrian and Transit Mall.

Ordinance # 736, Series of 1983, Assessing annual costs of Mall

Ordinance # 662, Series of 1984, Assessing annual costs of Mall

Amendatory Cooperation Agreement, 1984, with "Downtown Denver, Inc. (DDI)"

Proposed Contract, Continuing operation of Mall, with DDI, March 6, 1986.

City of San Diego, "Facilities Benefits Assessments-Growth Management Implementation".

City of San Diego, "Ordinance Relating to the Designation of Areas of Benefit to be Assessed to Cost of Public Facilities." Ordinance 0-15318.

"Fort Worth OKs Tax District to Spruce Up Downtown Area", Dallas Morning News, 7/23/86, p. 19A.

Lawrence D. Goldstein, "A Local Share Financing Strategy for the Downtown Seattle Transportation Project", in Lester A. Hoel, ed., Innovative Financing for Transportation, U.S. Department of Transportation (DOT), 1986, 255-290.

Renee Perkins Jaynes and Michael Levinson "An Issue Paper on the Use of Public Improvement Districts in Dallas" City Manager's Office, City of Dallas, January 13, 1986.

Bahar Norris, "Road Utility Districts", Memorandum to Gordon A. Shunk, North Central Texas Council of Governments, June 3, 1986.

C. Kenneth Orski, "Suburban Mobility: The Coming Transportation Crisis?" Transportation Quarterly, Vol. 39, No. 2, April 1985, 283-296.

C. Kenneth Orski, "The Outlook for Urban Transportation in Lester A. Hoel, ed. Innovative Financing for Transportation, U.S. DOT, 1986, 19-38.

Marc Samet, "Financing and Implementing Special Assessments", Dade County, Florida, 1984.

Robert C. Schaevitz, "Viability of Wide Area Assessment Districts for Financing Street Highway and Parking Improvements", in Lester A. Hoel, ed., Innovative Financing for Transportation, U.S. DOT, 1986, 173-196.

Southern California Rapid Transit District, Benefit Assessment Report (Preliminary), Metro Rail Benefit Assessment Districts.

Texas Good Roads Transportation Association and Greater San Antonio Chamber of Commerce, Financing the Future: A Seminar Exploring Traditional and Innovative Transportation Funding Alternatives, San Antonio, Texas, Oct. 10, 1985.

Calculations

In calculating potential square feet for benefit assessment districts in the NCTCOG area, the following sources were employed:

(1) For Dallas CBD, Office Space: Table 7, "existing" plus "under construction" in million square feet: $37.658 + 6.394 = 40.052$. For Dallas CBD, commercial space: Table 8, "Gross Leasable Area" + "Expansion, 1985": $2.548 + .067 = 2.615$, rounded to 2.5.

(2) Other than Dallas CBD, Office Space: Table 7, retail space, Table 8. "High growth areas" were approximated by selection of specific sections in Tables 7 and 8, as follows:

Other than Dallas CBD, office space, Table 7. million square feet

<u>Section</u>	<u>Existing</u>	<u>Under Construction</u>	<u>Total</u>
3. No. Central	9.054	1.678	10.732
4. LBJ Corridor	18.370	2.514	20.884
7. Far N. Dallas	10.495	1.605	12.100
8. Far No. Central	7.020	1.194	8.214
11. Las Colinas	10.980	0.933	11.915
12. Mid Cities	<u>4.338</u>	<u>0.743</u>	<u>5.081</u>
Total	60.257	8.669	68.926

Other than Dallas CBD, retail space, Table 8.

<u>Section</u>	<u>Gross Leasable area</u>	<u>Expansion in 1985</u>	<u>Total</u>
3A. Far N. Dallas	6.896	0.300	7.196
6. Addison	1.216	0.035	1.251
7. Carrollton	2.006	0.395	2.401
10. Farmers Branch	0.743	0.020	0.763
11. Garland	3.964	0.142	4.106
13. Irving	4.550	0.616	5.166
15. Richardson	3.825	0.093	3.918
16. Plano	6.754	1.597	8.351
19. Arlington	7.614	0.901	8.515
21. Hurst	<u>3.141</u>	<u>0.448</u>	<u>3.589</u>
Total	40.709	4.547	45.256

The total was rounded to 45 million square feet. Admittedly, there is an arbitrary element in the selection process here. However, there should be some balancing of omitted high growth areas with subareas of the included sections that are not high growth areas.

II.C LEASING OR SALE OF DEVELOPMENT RIGHTS OR AIR RIGHTS

Detail

Transportation agencies may lease or sell development rights for the space above, below or adjacent to their land holdings and facilities. Such space can be viewed as a form of land, and the rights can be priced accordingly. (Land typically accounts for about 20 to 25 percent of real estate value.)

Johnson and Hoel note that eminent domain powers are frequently used to assemble land for transportation projects and that several court cases have questioned whether those powers allow public agencies to obtain air (and subsurface) rights in excess of those needed to achieve the objectives for which the land was condemned. They also note that citizen groups often contend that the public does not gain sufficient benefits from the lease or sale of development rights.

Some recent examples may be noted. Air rights over Denver's Civic Center Transit District were leased in 1981, and the lease is expected to provide \$55 million during its first 15 years. In Miami, air rights over a transit station were leased in exchange for the acquisition of a site for the station plus 4 percent of unadjusted gross income for each year of the lease, expected to equal \$2 to \$3 million a year. The air rights development is expected to consist of 600,000 square feet of office space, 50,000 square feet of retail space, and a 300 room hotel.

Lawrence Goldstein estimates that in Seattle, the sale of development rights could capture as much as 30 percent of the \$130 million in new property value projected to be created by major improvements to the regional bus system.

Potential for Increased Revenue, Sale of Development Rights

Consider the case of State Highway 190. In Richardson and Plano, zoning for office and retail space along SH 190 may total 70 million square feet; however, only part of that land is expected to be developed, so actually developed building space then is estimated as 20 million square feet. (Estimate by J. Michael Chism, Richardson Chamber of Commerce.) The "land" component per square foot can be estimated as approximately \$30 to \$40 per square foot, with an increment due to the highway construction of \$10 to \$15 per square foot. Given the financial experience of the Miami and Seattle projects, and the ratio of the sale of development rights to market value, noted above, it seems reasonable to charge a development fee of \$5 per square foot. This will yield total revenue of \$100 million.

The prospective Richardson-Plano development is only part of the likely SH 190 induced development, in turn only part of all induced development because of new highways. Hence, a total of \$500 million over the 24 year period seems a modest estimate of total potential revenues. An annual figure of \$20 million corresponds to the 500 million total. In tabular form, this result is exhibited as follows:

<u>Source of Revenue</u>	Current Level (Annual Total)	Increment		
		Annual Current Level	Projected over 24 years Low - Annual x 24	to 2010 High - Annual x 36
Sale of Development Rights	---	20	500	750

Sources

Lawrence D. Goldstein, "A Local Share Financing Strategy for the Downtown Seattle Transportation Project", in Lester A. Hoel, ed., Innovative Financing for Transportation, U.S. DOT, 1986, 255-290.

Gary T. Johnson and Lester A. Hoel "Innovative Financing for Transportation: What are the Options?" in Lester A. Hoel, ed., Innovative Financing for Transportation, U.S. DOT, 1986, 1-19; See p. 7 in particular.

"Richardson Grapples with 190 Zoning", Plano Star-Courier, Aug. 24, 1986, p.1.

Rice Center, Houston, Texas, A Guide to Innovative Financing Mechanisms for Mass Transportation - An Update, Prepared for Urban Mass Transportation Administration, Washington, D.C., Dec., 1985.

"Planners Put Hunt Request on Hold", Richardson Daily News, Aug. 20, 1986, p.1.

Contact: J. Michael Chism
Director of Economic Development
Richardson Chamber of Commerce
214-234-4141

II.D DEVELOPER CONTRIBUTIONS THROUGH NEGOTIATIONS

Detail

General Experience

There are a variety of negotiated developer contributions to highway development including land donations, monetary donations and ad hoc arrangements of developer contributions to highway construction. Orski concludes that because of statutory and judicial restraints placed on development fees and assessments, many jurisdictions become involved in ad hoc negotiations with individual developers to secure private participation in transportation financing. He sees local governments as becoming adept at bargaining with developers. William Garrison cautions on this point, arguing that developers are liable to be more experienced and sophisticated in the negotiation process than are public officials, so that the developers will often get a better than "fair" deal, and the public will be the loser. Local governments can bargain by using devices involving discretionary development approvals such as subdivision approvals, rezoning, density bonuses, reduced parking requirements, etc. These can be viewed as a variant of the argument "why not buy and sell zoning...legally, that is?", as suggested by Marion Clawson some years ago.

Johnson and Hoel note cases of donations of land and money to transportation projects, including a \$9 million dollar campaign to save the cable cars in San Francisco. They point out that transportation agencies must be legally empowered to accept donations, and that establishment of a non-profit tax exempt committee to accept donations can be useful for tax purposes. Such contributions can be invested without tax liability and corporations making contributions are eligible to receive tax write-offs. Orski cites a number of successful cases of developer contributions through negotiations. Several

California cases are noted, including an Irvine Company contribution of \$60 million to pay for local transportation improvements in its 480 acre Irvine Center; a contribution of \$57.5 million worth of arterial roads, freeway overpasses and interchanges and other facilities in the one-billion dollar Rancho Carmel mixed use development; and an \$80 million pledged contribution for transportation improvements around Hacienda Business Park in Alameda County, California. Finally, several large developers, including Friendswood Development Company and Mitchell Energy and Development Corporation have helped pay for the financing of road improvements in the Houston area.

Local Experience

Transportation Corporations can legally be organized in Texas, and Texas Transportation Corporations can enter into contracts with government agencies to construct or improve highway projects and to sell completed projects to the Highway Commission (Bahar Norris memorandum on Transportation Corporations, North Central Texas COG, June 3, 1986). There have been a number of land donations, prospective land donations and attempted land donations in the NCTCOG planning area, but often the attempts have not come to fruition. For example, Trammel Crow, John Stemmons and Ben Carpenter, leading area developers, have offered to donate land and contribute to the financing of a 23-mile light rail line linking Dallas with the Dallas-Fort Worth airport and spanning major land holdings of the three developers (Orski, 1985). H. Ross Perot, Jr. and Nelson Bunker Hunt have volunteered to respectively contribute 250 and 107 acres for a North Fort Worth Freeway which would improve access to their properties (Fort Worth Star Telegram, 7/123/86, p.1, 4. and Dallas Times Herald, 7/10/86).

However, the securing of land donations for North Central Expressway widening and for State Highway 360 have generally been disappointing, to date, although

some donations have been obtained. (Dallas Morning News, 2/27/86, 1A and 5/30/86, 21A on North Central Expressway, and Arlington Citizen Journal, 7/13/86; Fort Worth Star Telegram, 7/11/86, p. 13; and Dallas Times Herald 8/13/86, p. 1, on State Highway 360).

Potential for Increased Revenue, Ad Hoc Negotiations

Because of the variety of devices that can be involved in ad hoc negotiations, revenue estimates must be speculative. However, it seems reasonable that revenue raised should be at least on the order of that obtained from the sale of development rights, yielding the following:

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u>	<u>Current</u>	<u>24 years to 2010</u>	
	<u>Total)</u>	<u>Level</u>	<u>Low -</u>	<u>High -</u>
			<u>Annual</u>	<u>Annual</u>
			<u>x 24</u>	<u>x 36</u>
Ad Hoc Negotiations	---	20	500	750

Sources

City of Escondido, "Ground Lease Development Rights", January 1, 1981.

Marion Clawson, "Why Not Sell Zoning and Rezoning? (legally, that is)," Cry California, Winter, 1966-67, pp. 9, 39.

Gary T. Johnson and Lester A. Hoel "Innovative Financing for Transportation: What are the Options?" in Lester A. Hoel, ed., Innovative Financing for Transportation, 1986, p. 8 in particular.

Bahar Norris, "The Highway Commission's Updates on the Texas Transportation Corporation Act", Memorandum to Gordon A. Shunk, NCTCOG, June 3, 1986.

C. Kenneth Orski "Suburban Mobility: The Coming Transportation Crisis?", Transportation Quarterly, April 1985, pp. 291-293 in particular.

Rice Center, Houston, Texas, A Guide to Innovative Financing Mechanisms for Mass Transportation - An Update, Prepared for Urban Mass Transportation Administration, Washington, D. C., Dec., 1985.

III. PARKING FEES, FINES AND TAXES

Overview

Definition

Revenue obtained from local government taxing of commercial parking lots and from traffic tickets and parking meters.

Examples

New York City, San Francisco

Financial Results

Revenues from parking charges collected from private parking operators has yielded \$12 million annually on a 6 percent tax in New York City and \$5.5 million per year on a 25 percent tax in San Francisco. Revenues from parking stickers, meters, permits and citations also may be substantial in urban areas.

Major Issues

Legal/Administrative It has been estimated that Dallas could obtain revenues from parking tickets of \$8.9 million and revenue from parking meters of \$3.4 million in 1990 by better enforcement and management. For parking tickets, there appear to be no legal problems as long as additional parking tickets are not due to selective enforcement.

Political Opposition from businesses not conveniently accessible by mass transit would be expected as well as from the owners of parking lots. Most individuals would probably be only marginally affected and therefore might not object to the tax.

Economic There is potential for a new and stable revenue source from the taxation of commercial parking lots. The tax is a user fee and therefore fairly efficient. There is an equity question raised over taxing only commercial lots rather than all long term parking in an area. There are indications that traffic patterns may be significantly affected by the taxation of parking lots or increased enforcement of parking meters with an increased incentive to use mass transit. Additionally the higher fees may encourage shopping in areas without taxation, that is, suburban shopping areas. Central city governments (Dallas and Fort Worth) are likely to entertain this hypothesis and consequently, will be reluctant to impose higher costs on parking.

III. PARKING FEES, FINES AND TAXES

Detail

General Information

Revenue sources from parking include:

1. Parking fees
 - a. from meters
 - b. from municipal lots and garages
2. Fines for parking violations
3. Taxes on Parking Lot operations

Almost all parking revenue in the Dallas-Fort Worth area is collected in the Central Business Districts of Dallas and Fort Worth. There is some evidence suggesting a potential for increased revenue from parking, but there also appears to be reluctance on the part of central city administrations to fully capitalize on that potential, probably because of a sense that this could drive business activity from the central cities to the suburbs.

Currently, annual revenue from meters is approximately \$1.0 million per year in the City of Dallas, with the bulk of revenue obtained from meters in the Central Business District (CBD). An increase in meter rates in the summer of 1986 increased revenue about 20 percent. Further increases can occur by way of higher rates and increased metering. Given the 1986 increase in rates, it is unlikely that further increases will occur for at least a year or two after that date, and perhaps not for several years. CBD rates now are almost all \$1 per hour. There is some potential for metering in other sections of the city, including the Greenville Avenue district, but this too appears relatively modest. The current annual revenue from meters in Fort Worth is \$0.7 million¹ per year, but the potential for expansion seems even more limited than is the

case in Dallas. (Information from respective transportation departments of cities of Dallas and Fort Worth.)

In Dallas, municipal ownership of garages and lots consist only of garages at City Hall, the Public Library and the Convention Center and of lots at Love Field. These parking facilities are not under centralized management but each is run by a separate agency of the city government.

A recent study carried out for the City of Dallas by Brophy and Associates, a consulting firm, concluded that the city could increase its parking revenues by nearly \$10 million a year if it wrote more parking tickets and more fully enforced collection of parking fines (Dallas Morning News, June 18, 1986). The study concluded that both parking meter revenue and parking violations collected were "low". The study estimated that revenue from meter operations could increase from \$0.8 million in 1985 to \$3.4 million in 1990. (The level of meter revenue in 1986 is at roughly an \$0.96 million annual rate, the 20 percent increase over 1985 presumably accounted for by the increase in rates noted earlier.) The study also estimated that greater diligence in issuing parking citations and in collecting fines would increase fines collected from \$1.5 million in 1985 to \$8.9 million in 1990. The study recommended increased enforcement against parking violations by towing vehicles and by use of the "Denver Boot", which clamps onto a vehicle wheel and immobilizes it until overdue tickets are paid. However, some city council members and Tommy Jones, Manager of the city's parking meter operations, are doubtful that enforcement will be increased.

Gary Johnson and Lester Hoel argue that the taxing of commercial parking lots shows great promise, both for revenue and for causing some shift to transit from automobiles. A six per cent tax on commercial parking in New York City yields

approximately \$12 million per year, and a 25 percent tax on commercial parking in San Francisco generates approximately \$5.5 million annually. Both New York and San Francisco are more densely populated and probably more congested than Dallas-Fort Worth, and so can probably charge more for parking; on the other hand, a greater number of auto trips to the CBD may well occur in Dallas-Fort Worth, so the revenue potential could be comparable.

Johnson and Hoel do recognize that increases in parking prices, by way of taxes, can alter travel patterns. In particular, this can discourage downtown shopping and job-seeking, speeding up the movement of economic activity to the suburbs. This may be the key source of apparent central city reluctance to aggressively tap the revenue potential of parking charges.

Potential for Increased Revenue, Parking Fees, Fines and Taxes

Minimum Estimate From information cited above, current revenue from parking meters is about \$1.7 million per year for Dallas and Fort Worth, combined, while revenue from parking fines appears to be about \$2.5 million per year.

The Dallas City Council approved spending \$432,000 for 3,000 new parking meters installed in 1986, and it is estimated that within the next several years the minimum increase from more meters and higher parking rates will be roughly \$0.5 million per year. If that limited increase is treated as the only change, the following minimum revenue increases are projected.

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u>	<u>Current</u>	<u>24 years to 2010</u>	
	<u>Total)</u>	<u>Level</u>	<u>Low-</u>	<u>High-</u>
			<u>Annual</u>	<u>Annual</u>
			<u>x 24</u>	<u>x 36</u>
Parking meters and fines	4.2	---	---	---
Meter revenue only	---	0.5	12	18

Maximum Estimates If Dallas-Fort Worth revenue from parking lot taxes were of roughly the same magnitude as that of San Francisco and New York, approximately \$10 million in additional revenue would be raised. In addition, if meter and parking fine revenue were raised to the level predicted by Brophy and Associates, cited above, the gain for Dallas would be roughly \$10 million per year. If Fort Worth had a corresponding gain of \$5 million per year in its meter and parking revenue, the area increment would be \$15 million per year. These changes imply the following revenue projections.

<u>Source of Revenue</u>	Revenue in millions of dollars			
	Current	Increment		
	Level	Annual	Projected over	
	(Annual Total)	Current Level	24 years Low - Annual x 24	to 2010 High - Annual x 36

Maximum revenue parking fees and fines

Parking lot taxes	---	10	240	360
Parking meters and parking fines	---	<u>15</u>	<u>360</u>	<u>540</u>
Total		25	600	900

Sources

Gary T. Johnson and Lester A. Hoel, "Innovative Financing for Transportation: What are the Options?" in Lester A. Hoel, ed., Innovative Financing for Transportation: Practical Solutions and Experiences. Office of U. S. Secretary of Transportation, Washington, D. C., April 1986, DOT-1-86-20.

"Study Lists Ways to Reap Millions From Parking", Dallas Morning News, June 18, 1986.

Information on city parking meter revenues obtained from respective transportation departments of cities of Dallas and Fort Worth.

Contacts: Tommy Jones, Manager of City of Dallas parking meter operations, 214-670-3772.

Martha Lundy, City of Fort Worth Transportation Department, 817-870-7804

IV. LOCAL OPTION MOTOR FUEL TAXES

Overview

Definition

A local option motor fuel tax is a tax levied by local jurisdictions for local purposes and is collected in addition to state and federal motor fuel taxes.

Examples

Florida; Nevada; Albuquerque, New Mexico; Virginia

Financial Results

Significant revenues can be obtained, varying according to tax rates and travel patterns.

In Florida, Dade County has a 6¢ local option gasoline tax, while Lafayette County has a 4¢ local option gasoline tax. In 1985, however, each received about \$26 per capita from their respective taxes. (The Dade County receipts were \$45 million, the population was 1.7 million, and per capita returns were \$26.4. The Lafayette County receipts were \$112,000 and population was 4.3 thousand, so per capita returns were \$26.0.) Local option gasoline taxes are 4¢ per gallon in Nevada, and 2¢ per gallon in Albuquerque, New Mexico and four counties in Virginia.

Major Issues

Legal/Administrative State-enabling legislation is required for local jurisdictions to levy local option motor fuel taxes. Restrictions are often imposed on the localities as to the use of the revenues, the rates that may be imposed, and the procedure for local approval of the tax. In Texas, it is possible that revenues collected would have to be distributed in the same fashion as state motor fuel tax revenue, with approximately three-fourths to transportation and one-fourth to education.

Political It is always difficult to implement a new tax. The need for revenue must be understood by the community and the existing tax structure must not be too high. To this extent, any potential local tax must be considered along with existing state and federal taxes. Difficulties may be particularly pronounced in Texas where there is significant opposition from the State Comptroller's Office and little support from the counties. The local option tax should be popular in localities which have significant traffic from nonresidents to whom the tax may be passed.

Economic It is a fairly good tax in that it is a user fee. It is not a 100 percent benefit charge, however, since nonusers of the highway also benefit to the extent that community services are provided more efficiently, e.g., fire and police services.

IV. LOCAL OPTION MOTOR FUEL TAX

Detail

General Information

State motor fuel tax rates are exhibited in Table 9 which also lists the 13 states having local motor fuel taxes. Most of those states are located in the Southeast (5) and Far West (4) regions of the country. Specific examples of local option taxes include both excise taxes (per gallon taxation) and sales taxes (a percentage tax on the amount of gasoline sales). Some examples of excise taxes are:

Hawaii - county tax of 4 to 6.5 cents per gallon

Florida - county tax ranging from 2 to 6 cents per gallon; additional local taxes are permitted.

Nevada - Reno and Las Vegas: 2 cents per gallon

New Mexico - Bernalillo County (Albuquerque): 2 cents per gallon

Virginia - Four counties: 2 cents per gallon

Some examples of local sales taxes on gasoline are:

California - in addition to a state gasoline sales tax of 4.75%, local governments assess 1.25%, except for Bay Area governments which assess 1.75%.

New York - the state assesses 4% and, in addition, local governments assess from 1% to 4%.

The California and New York sales taxes on motor fuel are in addition to the state excise taxes on motor fuel.

Case Example - Florida

Florida has four different types of local option fuel taxes available although only two are currently in use. The first tax, approved by the state legislature in the early 1970s, was the Voted Gas Tax. This tax allows a 1¢ per gallon tax to be levied subject to voter approval in a county-wide referendum.

TABLE 9

STATE MOTOR FUEL TAX RATES¹
(As of August 1985)

State and Region	Gasoline	Diesel	Gasohol	Added Tax	Local Tax	Notes
	(cents-per-gallon)					
U.S. Average	12.4¢	12.7¢	10.3¢			
New England						
Connecticut	16	16	15	2%		Added tax is on oil company gross earnings. 1¢/gallon to be added each year thru 1991.
Maine	14	14	14			Gasohol exemption of 4¢ effective January 1, 1986.
Massachusetts	*11	11	11			V.R. tax based on 10% of average wholesale price.
New Hampshire	14	14	14			
Rhode Island	*13	13	13	1%		Added tax is on oil co. gr. earn. 11% of whsl. avg. (V.R.)
Vermont	13	14	13			
Mideast						
Delaware	11	11	11			
Dist. of Col.	15.5	15.5	15.5			Variable changed to flat rate through December 31, 1985.
Maryland	*13.5	13.5	10.5			V.R. tax based on 10% of avg. wholesale value; 13.5¢ min.
+New Jersey	8	8	8			Diesel increase 3¢ effective September 1, 1985.
New York	8	10	8	6.75%	L	4% st. sales tax + 2.75% oil co. gross earnings tax.
Pennsylvania	12	12	12	6%		6% is wholesale franchise tax on motor fuels; varies between 5.4¢ & 7.5¢.
Great Lakes						
Illinois	13	15.5	13	6%	L	1% sales tax on gasohol.
+Indiana	14	15	14	5%		4% sales tax on gasohol; 8¢ special fuels surcharge on commercial vehicles.
Michigan	*15	15	14	4%		4% sales tax. Variable based on const. cost index.
Ohio	*12	12	12			Variable based on highway maintenance costs and consumption
Wisconsin	*16.5	16.5	16.5			Variable based on highway maintenance costs and consumption
Plains						
+Iowa	15	16.5	14			Gas & diesel inc. of 1¢ on 1/1/86. Diesel inc. of 1¢ on 10.5% of unvtd. average retail.
+Kansas	*11	13	7			
Minnesota	*7	17	13			
Missouri	7	7	7			
+Nebraska	*16.4	16.4	13.4			11.5¢ + percentage variable. Based inc. 1¢ on 10/1/85.
North Dakota	13	13	5			
+South Dakota	13	13	10		L	Dealers blending ethanol with gas get 1¢/gal. credit.
Southeast						
Alabama	13	14	10		L	Includes 2¢ "inspection fee".
+Arkansas	13.5	12.5	13.5	4%		4% sales tax is on gasohol only.
Florida	*9.6	9.6	7.6		L	Based on 4¢ gas tax + 5% retail average, beginning 7/85.
Georgia	7.5	7.5	7.5	3%		3% is retail "second gas tax."
Kentucky	*10	10	6.5			9% var. tax on whsl. avg.; 10¢ min. Lge. trucks + 2¢/gal.
Louisiana	16	16	0			
Mississippi	9	10	9	6%	L	
North Carolina	12.25	12.25	7.25			Includes 0.25¢ inspection fee.
South Carolina	13	13	13			Gasohol exemption of 6¢ effective January 1, 1986.
+Tennessee	13	13	9		L	Includes 1¢ special petroleum tax for gas, diesel.
Virginia	*13.63	13.63	5.63		L	Based on 11¢ + 3% based on whsl. price; 2¢ sales tax in 4 counties.
West Virginia	*15.35	15.35	15.35			Based on 10.5¢ + 5% whsl. avg.
Southwest						
+Arizona	13	13	13			Increases 3¢ on 1/1/86 & 1¢ on 7/1/90.
New Mexico	11	11	0		L	Variable tax repealed. 2¢ local tax in Bernalillo County.
+Oklahoma	10	10	10			Includes 0.08¢ inspection fee.
Texas	10	10	0			1/4 gas tax dedicated to education.
Rocky Mountain						
Colorado	12	13	7			
Idaho	14.5	14.5	10.5			
Montana	15	17	15			
Utah	14	14	14			
Wyoming	8	8	8			Diesel pays "compensatory fee", approximately 8¢/gal.
Far West						
California	9	9	9	6%	L	Sales tax reduced on gasohol by 3¢. 1.25% local sales tax included.
+Nevada	12	12	11		L	Inc. 1¢ on 1/1/86; Reno & Las Vegas have 4¢ local tax.
+Oregon	10	10	10		L	Will inc. 1¢ 1/1/86 & 1¢ on 1/1/87. Diesel taxed thru ton-mile.
Washington	18	18	16.2			
Alaska	8	8	0			
+Hawaii	11	11	11	4%	L	Gasohol exempt from sales tax. County tax 4-6.5¢.

^{1/} Does not include local taxes, license and inspection fees unless specifically noted.

* Variable or indexed tax (V.R.) expressed in cents-per-gallon. Changes without legislative action.

+ 1985 legislative action changing gasoline or diesel rates.

Reproduced from U.S. Advisory Commission on Intergovernmental Relations
Significant Features of Fiscal Federalism, 1985-86 Edition, Washington, D. C.,
1986, Table 67, 102.

The second and most widely used option is the Local Option Gas Tax. This option allows a tax of up to 6¢ (in whole pennies) to be placed on a gallon of gasoline. This tax may be implemented by a vote of the county's governing body and does not require a voter referendum. The tax may be in addition to the Voted Gas Tax (therefore allowing up to a total of 7¢) or may be levied separately.

The third available tax is the Metropolitan Transportation Authority Tax. This tax requires a population in excess of 200,000 people with a metropolitan planning organization eligible to receive W-36 federal urban funds. In addition, the area must have levied the full 6¢ of the Local Option Gas Tax. An area that meets these conditions is eligible to place up to 4¢ of additional tax on a gallon of gasoline if approved by referendum. This tax has not been utilized as yet but about 10 areas in Florida comprising 16 counties are potentially eligible, though not all have the full 6¢ Local Option Gas Tax in place. This tax was defeated in one 3-county area by a 4-1 margin. The suggested reason for this defeat, however, was its linkage on the same referendum with an increase in the property tax. In addition, it is always difficult to tax by referendum.

The fourth tax is the Local Option Sales Tax which is a 1 percent tax that can only be used for fixed guideway transit systems or for buses connected with the system. It was originally passed by the state legislature for a metrorail system in Dade County, but it failed there in a referendum. Five other counties are currently eligible to have referendums on this tax, but none have passed it as yet.

Of the 67 counties in Florida in 1986, 48 employ the Local Option Gas Tax. Of these, 10 use both the Local Option Gas Tax and the Voted Gas Tax. Two other

counties use only the Voted Gas Tax. The amount of the Local Option Gas Tax imposed by counties was as follows in summer, 1986:

Number of Counties	Amount of Tax
15	6¢
29	4¢
1.....	3¢
3.....	2¢

The number will probably change annually, as counties can implement the Local Option Gas Tax every September 1. All proceeds of the local option gas tax are bondable and may be used for both highway and transit-related items. Categories that are specifically eligible include:

- Public transportation operation and maintenance
- Road and right-of-way maintenance and equipment
- Road and right-of-way drainage
- Street lighting
- Traffic signs, engineering, signalization, and pavement markings
- Bridge maintenance and operation
- Debt service and current expenditures for capital projects in the above areas, including construction and reconstruction of roads.

In general, the Local Option Gas Tax is unrestricted for transportation use.

The Local Option Gas Tax is collected by the state at the retail level. The state charges a 6 percent collection fee and retailers are paid 1-3 percent, depending on the amount collected. There are some rebates to certain entities such as non-profit organizations. It is estimated that counties receive from 91 to 92 percent of the gross revenue collected. The Voted Gas Tax, in contrast, has no state charge or rebates.

The Local Option Gas Tax was collected at the wholesale level until it was changed to the retail level in January 1986. The primary reason was the

potential for fraud at the wholesale level since distributors may indicate that fuel is being sent to non-tax counties when in fact its final destination is taxed counties. The retail level collection avoids this problem, but generates problems of its own. The major problem at this level is that gasoline retailers are one of the most delinquent groups of taxpayers, with many going out of business before paying the tax. In addition, the retail level entails collecting at many more points than at the wholesale level.

Revenues from the local option motor fuel taxes vary markedly depending on population and traffic patterns. Dade County, which includes Miami, and has the largest population of all counties in the state, grosses roughly \$7.5 million for each 1¢ tax that it levies on gasoline. The county has the maximum 6¢ Local Option Gas Tax but not the Voted Gas Tax. In contrast, one of the least populated counties, Lafayette County, grosses about \$28,000 for each 1¢ levied. That county has 4¢ of the Local Optional Gas Tax in effect. Both Dade and Lafayette counties annually receive about \$26 per capita from their local option gasoline taxes although the Dade tax is 6¢ per gallon in contrast to the Lafayette tax of 4¢ per gallon. This can be explained by a much larger proportion of out-of-county customers in Lafayette County.

New legislation passed in 1985 creates an incentive for localities to enact all 6¢ of the Local Option Gas Tax. If the maximum tax is imposed, then any or all of the proceeds can be used as matching funds with the state for projects that involve construction of the state highway system. State matching funds are set at 20 percent of the project. It is hoped that localities levying the full 6¢ will become less reliant on state revenues.

In enacting local option fuel taxes it must be stressed that the overall level of taxation on fuel must be taken into account. Both federal and state taxes

must be considered. Consumers do not look at individual tax levels when determining how much fuel to purchase and where to purchase it, but at the total price of fuel. Thus, in deciding the amount of a local motor fuel tax to place on motor fuel in a particular locality, the federal tax of 9¢ a gallon and Florida's state tax of 9.7¢ a gallon must be considered. Furthermore, surrounding localities' tax structures must also be taken into account since lower prices in neighboring communities may well reduce the revenue generated by increasing a local tax on fuel.

Potential for Increased Revenue, Local Option Fuel Taxes

Approximately 2 billion gallons of motor fuel are sold annually in the NCTCOG planning area; with state fuel taxes as of 1986 at 10 cents per gallon, state motor fuel tax collections currently amount to approximately \$200 million from the local area. (The 1987 increase of state fuel taxes to 15 cents per gallon should then yield approximately \$300 million from the local area.)

Local option taxes can be calculated, based on a cents per gallon charge paralleling excise taxes currently in force in other localities, or based on a percentage tax paralleling percentage sales taxes now in force in California and New York. Revenue obtainable locally is shown for several alternatives, as follows.

<u>Source of Revenue</u>	Revenue in millions of dollars			
	Current	Increment		
	Level	Annual	Projected over	
	(Annual Total)	Current Level	24 years Low - Annual x 24	to 2010 High - Annual x 36
<u>Motor Fuel Taxes</u>				
(\$200 million collected by state in 1986 at 10¢ per gallon.)	(200)	---	---	---
A. <u>Local Excise Tax</u>	0	---	---	---
- Local option gasoline tax at 1¢ per gallon	---	20	480	720
- Local option gasoline tax at 2¢ per gallon	---	40	960	1440
- Local option gasoline tax at 4¢ per gallon	---	80	1920	2880
- Local option gasoline tax at 10¢ per gallon	---	200	4800	7200
B. <u>Sales Taxes</u> - specifically on gasoline				
Approximately 2 billion gals. sold currently				
If \$0.75 per gallon, \$1.5 billion in sales				
- at 1% tax	---	15	360	540
- at 4% tax	---	60	1440	2160

The figures shown cover taxes collected. In practice, motor fuel tax revenues currently are distributed as approximately three-fourths to highway transportation and one-fourth to education. (More precisely, the distribution is 78% : 22%, the formula being $\frac{3}{4} + (\frac{1}{8})(\frac{1}{4})$ to transportation.) If the same proportions are imposed on local option taxes, the figures shown above should be reduced accordingly.

Sources

Calculations

The estimated state tax collection of \$200 million from the NCTCOG Program planning area was obtained as follows. From the State Comptrollers Office, 1985 tax collections were:

Dallas County:	\$109.1 million
Tarrant County:	\$ 61.1 million
Two County Total:	\$170.2 million

Source: State of Texas Comptroller's Office, Annual Report, Fiscal Year Ended 8/31/85, Texas Comptroller of Public Accounts, Austin, Texas, November 4, 1985.

The \$170.2 million figure was divided by 0.895 to yield the NCTCOG "Old Intensive Study" area total and then multiplied by 1.05 to convert to the NCTCOG new planning area total of \$199.7 million, rounded to \$200 million. Scale factors are the VMT ratios of the NCTCOG.

Total motor fuel taxes collected for Texas in 1985 were \$770.73 million. Employing NCTCOG scale factors of 0.111 to yield the Dallas County estimated tax, and .062 to yield the Tarrant County Tax, those taxes were estimated as \$85.6 million and \$47.8 million, respectively, both equivalent to 78% of total tax collected, in turn equivalent to $3/4 + (1/8) (1/4)$ of the total.

Source: State of Texas Department of Highways and Public Transportation, Annual Financial Report for Fiscal Year Ended August 31, 1985, unaudited, Austin, Texas, 1985.

References

U. S. Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism 1985-86 edition, Washington, D. C., 1986.

U. S. Federal Highway Administration, State Highway Cost-Allocation Guide, Vol. II Technical Appendix, Washington, D. C., October 1984.

Contact

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V. LOCAL SALES TAXES

Overview

Definition

A tax imposed on general merchandise, specific services and luxury items by most states and many local governments. The tax is generally an ad valorem (percentage) tax and may have some portion dedicated to transportation.

Examples

Local sales taxes include rates of 3% in Baton Rouge, LA and 5% in New Orleans, LA (with a state sales tax of 4% in Louisiana). Denver has a local sales tax of 3.67%, and Tulsa has one of 3%. A number of cities have local sales tax rates of 1% to 2%. Dallas has a 1% local sales tax plus a 1% sales tax for DART financing.

Financial Results

General sales taxes are the largest source of revenue for states, with receipts in 1983 ranging up to \$7.8 billion for Texas. Rates varied as of January 1, 1986 from 0% in five states to 7.5% in Connecticut. Many cities have an additional sales tax which contributes to local revenues. In 1982, Chicago and Washington D.C. had receipts in excess of \$400 million and Los Angeles received \$369 million while Dallas received about \$115 million. In 1985, DART collected \$155.2 million from the DART-dedicated sales tax, while collections on the 1% local tax in the NCTCOG policy area equalled \$285 million.

Of those states which apply the sales tax to motor fuel, only Georgia dedicates all motor fuel sales tax revenue, and Illinois and Mississippi dedicate part of these revenues to streets and highways.

Major Issues

Legal/Administrative Administrative problems can arise if the sales tax rate varies among communities within a local area.

Political While taxes of any sort are unpopular, sales taxes tend to be more acceptable than most other forms of taxation.

Economic Sales taxes tend to be regressive and the services they finance do not generally benefit those who pay the taxes. They do provide a stable source of revenue and respond quickly to changes in overall income levels. It is important to account for the total level of sales taxation as well as the local portion since it is the total amount that will affect consumption expenditures.

V. LOCAL SALES TAX

Detail

General Information

Table 10 presents detailed information on sales taxes for selected large cities and counties which have local as well as state sales taxes. That table exhibits the Texas state sales tax at 4.125%, the rate as of 1986; in 1987, the state sales tax was raised to 5.25%, at least until Aug. 31, 1987. There were a number of local sales taxes in place, including Dallas at 2% and Fort Worth at 1.25%. The Dallas tax includes a 1% Dallas Area Rapid Transit (DART) sales tax which applies to DART member cities. The Dallas and Fort Worth total state and local sales taxes are at roughly the same level as those in force for a number of large cities, including those in California, Colorado, Missouri, Ohio, Oklahoma and Utah. Cities with significantly higher levels include Chicago (8%), New Orleans (9%), New York City (8.25%) and Seattle (7.9%).

NCTCOG Area Sales Tax Information

Data Resources, Incorporated has estimated DART sales tax collections as \$155.2 million as of 1985. In contrast, the sum of city sales tax collections was estimated as \$171.5 million for member cities in the DART district. Although both amounts are derived from 1% sales taxes on the same base of taxable items, sales from within DART member cities to cities not in the district are not subject to the DART tax, but are subject to city sales taxes. The difference between \$155.2 million and \$171.5 million is 12 percent, and though this seems a relatively high percentage and is based on limited experience to date, the DRI conclusion is that the percentage is likely to be stable over time (DRI, 1986, p. 32).

TABLE 10

LOCAL SALES TAXES, AMOUNT OF REVENUE COLLECTED, AND DEGREE OF
RELIANCE FOR SELECTED LARGE CITIES AND COUNTIES, 1984 1/

State/City (County)	1985 State Sales Tax Rate	1984 Local Sales Tax Rate 2/	Total Sales Tax Rate	City Share of Local Sales Tax Revenue			County Share of Local Sales Tax Revenue		
				FY84 City Sales Tax Revenue Collected (000s)	FY84 City Sales Tax as a % of Total City General Revenue	FY84 City Sales Tax Revenue Per Capita 3/	FY84 County Sales Tax Revenue Collected (000s)	FY84 County Sales Tax as a % of Total County Revenue	FY84 County Sales Tax Revenue Per Capita
ALABAMA									
Birmingham (Jefferson)	4%	3%	7%	\$18,982	10%	\$67.02	\$34,616	20%	\$51.47
ARIZONA									
Phoenix (Maricopa)	5%	1%	6%	67,947	11%	82.44	N/A	N/A	N/A
Tucson (Pima)	5%	2%	7%	60,851	26%	172.65	N/A	N/A	N/A
ARKANSAS									
Little Rock (Pulaski)	4%	1%	5%	N/A	N/A	N/A	24,623	34%	71.43
CALIFORNIA									
Long Beach (Los Angeles)	4.75%	1.75%	6.5%	21,455	6	57.76	40,316	1%	5.25
Los Angeles (Los Angeles)	4.75%	1.75%	6.5%	208,758	10	69.07	40,316	1%	5.25
Oakland (Alameda)	4.75%	1.75%	6.5%	22,433	6	65.09	8,339	--	7.33
San Diego (San Diego)	4.75%	1.25%	6.0%	66,610	14	72.72	10,889	1%	5.55
San Francisco (San Francisco)	4.75%	1.75%	6.5%	64,907	4	93.85	--	--	--
San Jose (Santa Clara)	4.75%	1.75%	6.5%	48,001	12	72.82	60,831	7%	45.76
COLORADO									
Denver (Denver)*	3.0%	3.6%	6.6%	133,623	20	264.31	N/A	N/A	N/A
GEORGIA									
Atlanta (Fulton-DeKalb)	3%	2%	5%	N/A	N/A	N/A	83,466 6/	31% 6/	138.81 6/
ILLINOIS									
Chicago (Cook)	5%	3%	8%	202,991	10	67.73	3,184	--	.61
KANSAS									
Kansas City (Wyandotte)	3%	1.5%	4.5%	3,172 5/	3	19.68	5,114	22%	29.43
Wichita (Sedgwick)	3%	0%	3%	N/A	N/A	N/A	N/A	N/A	N/A
LOUISIANA									
Baton Rouge (East Baton Rouge)*	4%	3%	7%	64,722	18	179.00	N/A	N/A	N/A
New Orleans (Orleans)*	4%	5%	9%	112,379	21	199.06	N/A	N/A	N/A
MISSOURI									
Kansas City (Jackson-Clay)	4.225%	2.0%	6.225%	39,143	10	87.92	26,225 4/	21% 4/	34.19 4/
St. Louis (St. Louis)	4.225%	2.25%	6.475%	43,660	9	99.83	103,391	37%	105.89
NEBRASKA									
Omaha (Douglas)	3.5%	1.5%	5.0%	38,233	22	116.37	188	--	.47
NEW MEXICO									
Albuquerque (Bernalillo)	3.75%	.875%	4.652%	29,596	10	86.54	3,218	7	7.40
NEW YORK									
Buffalo (Erie)	4%	3%	7%	N/A	N/A	N/A	162,377	22%	162.98
New York City*	4%	4.25%	8.25%	1,685,583	8	237.87	N/A	N/A	N/A
NORTH CAROLINA									
Charlotte (Mecklenburg)	3%	1.5%	4.5%	12,403	6	38.28	34,113	9%	81.33
(continued on next page)									

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Reproduced from Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism, 1985-86 edition, Washington, D.C., 1986, Table 65, pp. 99-100.

TABLE 10 (continued)

LOCAL SALES TAXES, AMOUNT OF REVENUE COLLECTED, AND DEGREE OF
RELIANCE FOR SELECTED LARGE CITIES AND COUNTIES, 1984 ^{1/}

State/City (County)	1985 State Sales Tax Rate	1984 Local Sales Tax Rate 2/	Total Sales Tax Rate	City Share of Local Sales Tax Revenue			County Share of Local Sales Tax Revenue		
				FY84 City Sales Tax Revenue Collected (000s)	FY84 City Sales Tax as a % of Total City General Revenue	FY84 City Sales Tax Revenue Per Capita 3/	FY84 County Sales Tax Revenue Collected (000s)	FY84 County Sales Tax as a % of Total County Revenue	FY84 County Sales Tax Revenue Per Capita
OHIO									
Cincinnati (Hamilton)	5%	.5%	5.5%	N/A	N/A	N/A	21,846	8%	25.06
Cleveland (Cuyahoga)	5%	1.5%	6.5%	N/A	N/A	N/A	32,054	5%	21.76
Columbus (Franklin)	5%	.5%	5.5%	N/A	N/A	N/A	N/A	N/A	N/A
Toledo (Lucas)	5%	1%	6%	N/A	N/A	N/A	20,467	15%	43.65
OKLAHOMA									
Oklahoma City (Oklahoma)	3%	2%	5%	82,713	28%	193.38	N/A	N/A	N/A
Tulsa (Tulsa)	3%	3%	6%	101,002	34	269.12	N/A	N/A	N/A
SOUTH DAKOTA									
Sioux Falls (Minnehaha)	4%	2%	6%	9,079	20	108.73	N/A	N/A	N/A
TENNESSEE									
Memphis (Shelby)	5.5%	2.25%	7.75%	28,979	4	44.88	67,835	15%	86.51
Nashville (Davidson)*	5.5%	2.25%	7.75%	84,678	17	186.00	N/A	N/A	N/A
TEXAS									
Austin (Travis)	4.125%	1%	5.125%	28,097	10	76.32	N/A	N/A	N/A
Dallas (Dallas)	4.125%	2%	6.125%	83,064	14	88.01	N/A	N/A	N/A
El Paso (El Paso)	4.125%	1%	5.125%	15,596	8	35.04	N/A	N/A	N/A
Fort Worth (Tarrant)	4.125%	1.25%	5.375%	26,161	12	65.17	N/A	N/A	N/A
Houston (Harris)	4.125%	2%	6.125%	144,475	14	83.72	N/A	N/A	N/A
San Antonio (Bexar)	4.125%	1.5%	5.625%	41,596	13	50.79	N/A	N/A	N/A
UTAH									
Salt Lake City (Salt Lake)	4.625%	.375%	5.75%	17,485	12	106.71	21,990	11%	33.33
VIRGINIA									
Norfolk	3%	1%	4%	16,427	5	61.55	N/A	N/A	N/A
WASHINGTON									
Seattle (King)	6.5%	1.4%	7.9%	34,076	8	69.53	18,821	5%	14.35
WYOMING									
Casper (Natrona)	3%	1%	4%	N/A	N/A	N/A	Information not available		

NOTE: This table of local general sales tax information only includes information on selected large cities. See the preceding two tables for information on the extent of usage of local income taxes in all states.

^{1/} Local sales taxes may include city, county, school district, or transit sales taxes if applicable.

^{2/} Tax rates as of October 1984.

^{3/} Based on 1982 population figures.

^{4/} Information combines revenue for both counties.

^{5/} Data is for FY 82.

^{6/} Information for Fulton County only.

* Combined city-county government.

Sources: ACIR computations based on Commerce Clearinghouse, State Tax Reporter; Bureau of the Census, City Government Finance in 1983-84 and County Government Finances in 1983-84.

Table 11 exhibits 1985 sales tax collections for DART member cities, and demonstrates that there is great variation in per capita collections. Obviously, retail centers such as Addison and Farmers Branch can be expected to be well above primarily residential communities in per capita sales and sales tax; however, the difference is quite pronounced, with Addison having 70 times as much sales tax per capita as Glenn Heights. It also seems worth remarking that Farmers Branch and Richardson have higher sales taxes per capita than does the City of Dallas.

The DRI projections of DART area sales taxes, in constant dollars, can be put in the form of indexes as follows:

1985	100.0
1990	120.0
2000	161.9
2010	213.6

Total sales in the Dallas-Fort Worth metropolitan areas amounted to \$98.7 billion in 1985, with this breakdown between the two areas in million dollars:

Dallas Metropolitan Statistical Area (MSA):	\$72,178.6
Fort Worth-Arlington MSA:	<u>26,479.1</u>
	\$98,657.7

For the four counties corresponding to the NCTCOG Program Planning area, there was the following distribution of sales and of sales subject to tax (data from the State Comptrollers Office):

TABLE 11

SALES TAX COLLECTIONS
FOR DART MEMBER CITIES

	1985 SALES TAX IN THOUSAND DOLLARS	1985 POPULATION	SALES TAX PER CAPITA
ADDISON	4,032.1	9,475	425.6
CARROLLTON	5,832.9	66,400	87.8
COCKRELL HILL	78.3	3,075	25.5
COPPELL	284.4	9,300	30.6
DALLAS	112,475.3	938,425	119.9
FARMERS BRANCH	5,532.0	24,425	226.5
FLOWER MOUND	202.4	10,975	18.4
GARLAND	8,758.7	171,650	51.0
GLENN HEIGHTS	22.3	3,675	6.1
HIGHLAND PARK	724.9	8,975	80.8
IRVING	13,276.9	137,425	96.6
PLANO	9,038.2	105,600	85.6
RICHARDSON	9,374.6	74,025	126.6
ROWLETT	572.7	13,700	41.8
UNIVERSITY PARK	1,287.7	22,525	57.2
OUTSIDE CITY OF DALLAS	59,018.1	661,225	89.3
NON-DALLAS, EXCLUDING ADDISON	54,986.0	651,750	84.4
TOTAL	171,493.4	1,599,650	107.2

Data Sources: Population - NCTCOG, Current Population 1986 Estimates, May 1986. 1985 Populations = Average of 1/1/85 and 1/1/86 population.

Sales Tax - Data Resources Incorporated, Forecasts From the Dallas Area Rapid Transit Tax, May 1986.

Sales Information in Million Dollars, 1985

	Total Sales	Sales Subject to Tax	Taxable Sales Divided By Total Sales
Collin	2,534.993	1,060.245	0.418
Dallas	65,223.451	18,819.256	0.289
Denton	2,410.888	955.206	0.396
Tarrant	25,386.182	7,505.451	0.296
Total	93,385.715	28,340.158	0.303

Thus, the NCTCOG area local sales tax collected, at 1 % of sales, approximately equaled \$285 million as of 1985.

Potential For Increased Revenue, Local Sales Taxes

Share of DART 1% Sales Tax As noted above, DART collected \$155.2 million from its 1% local sales tax in 1985. A case can be made that a share of that tax ought to be allocated to highways because of the maintenance costs imposed on roads by DART buses, and more generally, to reflect DART bus use of the highway system. No doubt, the imposition of such a distribution would meet with considerable resistance from the DART board and staff. Nonetheless, the proposal seems worth consideration. If put into effect, these would be the financial result under alternative shares based on 1985 DART sales tax collections. (One-twentieth share means one-twentieth of DART sales tax collections or .05 of the one percent DART sales tax, will be employed for highways, and so on.)

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u>	<u>Current</u>	<u>24 years</u>	<u>to 2010</u>
	<u>Total)</u>	<u>Level</u>	<u>Low-</u>	<u>High-</u>
			<u>Annual</u>	<u>Annual</u>
			<u>x 24</u>	<u>x 36</u>
Share of DART Sales Tax	155.2	---	---	---
- one-twentieth share	---	7.8	186	281
- one-tenth share	---	15.5	372	558
- one-fifth share	---	31.0	744	1116

General Sales Tax - NCTCOG Policy Planning Area As developed above, in 1985 the NCTCOG planning area had \$28.5 billion in sales subject to sales tax. The current 1% local sales tax consequently yielded \$285 million annually. The effect of dedicating an additional fractional percentage of the sales tax to highway use would be as follows:

<u>Source of Revenue</u>	Revenue in millions of dollars			
	Current	Increment		
	Level	Annual	Projected over	
	(Annual Total)	Current Level	24 years Low - Annual x 24	to 2010 High - Annual x 36
General Sales Tax	(285)	---	---	---
- If add 0.25% dedicated to highways	---	71.3	1710	2565
- If add 0.50% dedicated to highways	---	142.5	3420	5130
- If add 1.00% dedicated to highways	---	285.0	6840	10260

Expand Sales Subject to Sales Tax Sales subject to tax are only 30% of total sales in the NCTCOG area. Sales subject to tax equaled \$28.5 billion in 1985; total sales equaled \$96.0 Billion; sales currently not subject to tax (\$96.0-\$28.5 billion) equaled \$67.5 billion. If all of those sales were taxed and if an additional share were dedicated to highway use, the following revenue increments would be obtained:

<u>Source of Revenue</u>	Revenue in millions of dollars			
	Current	Increment		
	Level	Annual	Projected over	
	(Annual Total)	Current Level	24 years Low- Annual x 24	to 2010 High- Annual x 36

Making all Sales Subject to Tax, with:

0.10% dedicated to highways	---	67.5	1620	2430
0.25% dedicated to highways	---	168.8	4050	6075
0.50% dedicated to highways	---	337.5	8100	12150
1.00% dedicated to highways	---	675.0	16200	24300

Sources

Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism, 1985-86 edition, Washington, D. C., 1986.

Data Resource, Incorporated, Forecast of Revenues From the Dallas Area Rapid Transit Tax: State and Local Government Practice, Dallas (?), May 1986.

Contact: Frances Lawson, State Comptrollers Office, Austin, Texas,
512-463-4930.

VI. PROPERTY TAXES

Overview

Definition

Taxes levied on both real and personal property. While the taxes may be imposed at any level of government, they are usually collected and used by local jurisdictions. They are generally allocated out of the general fund and not dedicated in any part to transportation.

Examples

The effective tax rate is defined as the nominal rate times the assessment ratio; the assessment ratio is the ratio of assessed value to market value, and the nominal rate is the rate of taxation on assessed value. In 1984, Newark, NJ had the highest effective rate of the largest cities in each state, at 6.29 per \$100 of value; Casper, WY had the lowest effective rate at 0.59 per \$100. Most cities had rates between 1.00 and 2.50. Houston's was 1.68, ranking 24th out of the 50 cities covered. In 1978, the Dallas effective rate was about 20% above Houston's; if that difference persisted in 1984, the Dallas effective rate was approximately \$2 per \$100 of value, equivalent to that of Chicago (1.99) and Omaha (1.98). To view these results in broader perspective, note that: (1) Houston's total state and local tax rate was among the lowest of all large cities, and (2) Dallas and Houston are very close in that total rate (at least, as of 1978), differing by only a few percentage points (on the order of 3%). Hence, there seems at least some potential for increases in state and local tax rates, including the property tax.

Financial Results

In 1984, in Collin, Dallas, Denton and Tarrant counties, total county property taxes equalled \$160.0 million and city property taxes equalled \$526.1 million. Hence, modest increases in tax rate can yield considerable increases in revenue; in particular, a one percent increase will yield \$6.8 million.

Major Issues

Legal/Administrative There are no problems with collecting a property tax for general fund purposes. The legal situation for dedicating property taxes to transportation uses is not clear.

Political The property tax is one of the most unpopular taxes. It is highly visible in that it is paid in a lump sum, and it has been the focus of voter resistance in the recent past. Additionally, underassessments and infrequent reassessments are common.

Economic The property tax is considered mildly progressive. Since it is a general tax, property taxpayers do not necessarily receive equal public services for equal contribution. Any dedication of part of the tax for transportation purposes would likely increase this problem.

VI. PROPERTY TAXES

Detail

General Information

The Dallas-Fort Worth metropolitan area is very "typical" in its property tax collections, on a per capita basis. Table 12 exhibits the rankings of metropolitan areas in per capita property tax collected, as of 1982. The Dallas-Fort Worth area with a per capita tax of \$343 ranked 87th of the 275 metropolitan areas; most of the areas had per capita collections ranging from \$200 to \$400 per person, which covers ranks 51 through 203, and accounts for more than half the total number of metropolitan areas.

Table 13 reinforces the image of Dallas-Fort Worth as typical, perhaps quintessentially so, for its per capita collection was essentially the same as the U.S. overall average of \$341 per capita. The U. S. metropolitan average was somewhat higher, at \$366 per capita. Table 13 also shows per capita property tax collections for the components of the Dallas-Fort Worth metropolitan area. The entire area is defined as a CSMA, or consolidated metropolitan statistical area; the Dallas portion had a higher collection level, at \$373 per capita, than did the Fort Worth portion, at \$283 per capita.

Each of those components is termed a PMSA or primary metropolitan statistical area. For each PMSA, the component counties are also listed, with collections per capita ranging from a low of \$161 for Johnson County to a high of \$410 for Dallas county. Besides Dallas county, the major counties in the COG study area-- Collin, Denton and Tarrant - had fairly consistent collections per capita, ranging from \$220 for Denton to values in the \$290's for Collin and Tarrant.

Both Tables 12 and 13 exhibit a number of major metropolitan areas with property tax collections above that of the Dallas-Fort Worth area, with Houston a

TABLE 12

PROPERTY TAXES COLLECTED PER CAPITA, 1982
FOR SELECTED METROPOLITAN AREAS

Metropolitan Area	Property Tax Per Capita 1982	Rank
Atlantic City NJ	\$739	1
New York NY	636	2
Detroit MI	585	3
Boston MA	567	4
Hartford CT	554	5
Saginaw MI	513	10
Portland OR	480	20
<u>Houston TX</u>	478	21
Chicago IL	460	27
Denver CO	399	51
Philadelphia PA	363	76
San Francisco CA	347	84
<u>Dallas-Fort Worth TX</u>	343	87
Los Angeles CA	302	112
Raleigh NC	274	138
Altoona PA	200	203
New Orleans LA	147	247
Baton Rouge LA	116	259
Las Cruces NM	68	272
Tuscaloosa AL	66	273
Anniston AL	57	274
Montgomery AL	52	275

Source: U.S. Bureau of the Census, State and Metropolitan Area Data Book, 1986, Washington, D. C. 1986, Table 2, XLII-XLV. Coverage: 275 Metropolitan Areas.

TABLE 13

PROPERTY TAXES COLLECTED, TOTAL AND PER CAPITA, 1982,
FOR SELECTED AREAS - DETAILED COMPARISONS

United States	\$341	78,951.9
U.S. Metropolitan	366	64,433.9
U.S. Nonmetropolitan	262	14,518.0
Dallas-Fort Worth CMSA	343	1,077.9
Dallas PMSA	373	780.0
Fort Worth PMSA	283	297.9
Dallas PMSA		
Collin Co	294	48.3
Dallas Co	410	671.4
Denton Co	220	36.4
Ellis Co	178	11.3
Kaufman Co	192	8.1
Rockwall Co	261	4.3
Fort Worth PMSA		
Johnson Co	161	11.8
Parker Co	212	10.2
Tarrant Co	297	275.9
Houston PMSA	471	1,446.4
New York NY PMSA	575	4,764.8
Washington D.C. MSA	468	1,559.6
Chicago IL PMSA	453	2,757.8
Denver CO CMSA	399	687.3
Philadelphia PA CMSA	363	2,071.0

Source: U.S. Bureau of the Census, State and Metropolitan Area Data Book, 1986, Washington, D. C., 1986, pp. 16, 36, 56, 216, 276, 316.

MSA: Metropolitan Statistical Area, PMSA: Primary Metropolitan Statistical Area, CMSA: Consolidated Metropolitan Statistical Area. See Dallas-Fort Worth as an example.

particularly notable case. There is at least a hint here that there is some scope for increasing Dallas-Fort Worth rates without making them out of line with the rates in other metropolitan areas.

Of course, the evidence presented above shows total collections, which consists of effective tax rates times the market value of property, and the effective rate can be viewed as a better indicator of tax level than amount collected. (Effective rate equals nominal rate times the assessment ratio; the assessment ratio is the ratio of assessed value to market value, and the nominal rate is the rate of taxation on assessed value.) In 1984, for data covering the largest cities in each state, most cities had effective rates between 1.00 and 2.50, that is, taxes paid ranged from \$1 to \$2.50 per \$100 of market value. Houston's was 1.68, ranking 24th of the 50 cities covered (U.S. Statistical Abstract, 1986, p. 293). In 1978, the City of Dallas had property tax rates about 20% above those of Houston (Cummings, 1982, p. 37). If that relation held in 1984 as well, Dallas would have an effective rate around 2.00, roughly equal to that of Chicago and Omaha, and below a number of cities including St. Louis (2.15), Minneapolis (2.31), Portland, Maine (2.35) and Portland, Oregon (2.37). Several cities had much higher rates, including Milwaukee (3.34) and Detroit (4.04).

These data again suggest some scope for property tax increases, in the sense that an increase of 10 percent or so would not move Dallas-Forth Worth "out of line" with experience elsewhere. From Table 13, it can be seen that a 10% property tax increase would yield roughly \$100 million annually, assuming that property values would not be affected by that increase. This is a substantial amount, and could cover roughly half the "Mobility 2000" shortfall. (Of course, dedicating any or all of that increment to highway purposes would no doubt pose problems.) In the next sections, the property tax is considered in some detail,

by viewing major components under the headings of county and city property taxes. (Since school district and hospital district property taxes are dedicated to schools and hospitals, respectively, they have not been considered.)

County Property Taxes

Collin, Dallas, Denton and Tarrant Counties account for the bulk of the NCTCOG planning area. In 1984, those counties contained property with a combined appraised value of approximately 136 billion dollars, which was 20 percent of the state total. The distribution of appraised property values by type and county appears as Table 14. According to the Texas State Property Tax Board, a county may levy as many as three individual property taxes for funds dedicated to specific purposes: The General Revenue Fund, Farm to Market Roads and Flood Control (F.M. & F.C.), and a special Road & Bridge Fund (Annual Report for Tax Year 1985, P. E-1). Counties have various options about the way property in their jurisdiction is assessed, the rate at which it is taxed and the classes of property which are exempt from taxation.

Potential for Increased Revenue, County Property Taxes

Table 15 shows the magnitudes of various property tax exemptions, while Table 16 shows revenues raised by county property taxes in 1984. Those tables will be employed in considering a variety of options for increasing property tax revenue, including increases from the General Property Tax, from the Road and Bridge Tax and from increased taxation of motor vehicles.

TABLE 14

APPRAISED VALUE BY TYPE OF PROPERTY FOR
STATE OF TEXAS AND MAJOR NCTCOG AREA COUNTIES, 1984

Category	State of Texas	NCTCOG Area Counties				4 County Total
		Collin	Dallas	Denton	Tarrant	
	In Million Dollars					
Residential ^a	225,599	4,745	36,706	3,000	16,735	61,186
Land (unimproved) ^b	111,660	4,527	7,324	1,074	3,752	16,677
COMML, INDL and Other ^c	330,368	2,560	40,803	1,317	13,070	57,750
Vehicles	<u>2,051</u>	<u>*</u>	<u>0</u>	<u>0</u>	<u>167</u>	<u>167</u>
Total	669,578	11,832	84,833	5,391	33,724	135,780

	Percent of Total					
Residential ^a	33.7	40.1	43.3	55.7	49.6	45.1
Land (unimproved) ^b	16.7	38.3	8.6	19.9	11.1	12.3
COMM, INDL and Other ^c	49.3	21.6	48.1	24.4	38.8	42.5
Vehicles	0.3	**	0.0	0.0	0.5	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

* Less than .1 Million Dollars

** Less than .01 per cent

^aTotal of single family and multifamily residential

^bTotal of vacant lots and acreage

^cTotal of farm and ranch improvements; commercial and industrial real estate; oil, gas and minerals; banks, utilities, business personal and intangible personal.

Source: State of Texas, Property Tax Board, Annual Report for Tax Year 1984, Austin, Texas, Dec. 1985.

TABLE 15

VALUE OF VARIOUS PROPERTY TAX EXEMPTIONS
FOR STATE OF TEXAS AND MAJOR
NCTCOG AREA COUNTIES, 1984

Source of Exemption	State of Texas	NCTCOG Area Counties			
		Collin	Dallas	Denton	Tarrant
		In Million Dollars			
General Revenue	52,263	46	16,114	103	1,601
Homestead Exemption ^a	NA	0	(14,680)	0	0
Farm to Market & Flood Control	32,831	0	0	0	1,959
Productivity	56,800	2,380	631	469	947

^aIncluded in General Revenue Exemption
NA: not available

Source: State of Texas, Property Tax Board, Annual Report for Tax Year 1984,
Austin, Texas, Dec. 1985.

TABLE 16

REVENUE RAISED THROUGH COUNTY PROPERTY TAXES, 1984

<u>Type of Tax</u>	State of Texas	NCTCOG Area Counties			
		Collin	Dallas	Denton	Tarrant
		Tax Rates in Percent			
General Revenue ^a	0.21357	0.18160	0.13950	0.21160	0.11725
Farm to Market & Flood Control ^b	0.02638	0.0	0.0	0.0	0.00804
Road and Bridge ^c	0.00769	0.0	0.00090	0.0	0.0
Tax Levy in Million Dollars					
General Revenue	1,197.3	17.0	95.0	10.2	36.4
Farm to Market & Flood Control	168.2	0.0	0.0	0.0	2.4
Road & Bridge	43.1	0.0	0.6	0.0	0.0
Total	1,408.6	17.0	95.6	10.2	38.8

^aComputed as General Revenue Levy divided by (Total appraised value -
Productivity Reduction - General Revenue Exemption)

^bComputed as F.M. & F.C. Levy/(Total appraised value - F.M. & F.C. exempt)

^cComputed as Road and Birdge Levy/Total appraised value - Productivity Reduction
- General Revenue Exemption

Source: State of Texas, Property Tax Board, Annual Report for Tax Year 1984,
Austin, Texas, Dec. 1985.

Potential for Increased Revenue, County General Property Tax The tables on county property taxes (Tables 14, 15, and 16) yield the following information on appraised value, appraised value net of exemptions and total tax levy, in millions of dollars:

	Appraised Value	Appraised Value Net of Exemptions	Total Tax Levy: Revenue Collected
	(million dollars)		
State of Texas	669,678	560,615	1197.3
NCTCOG Counties:			
Collin	11,832	9,406	17.0
Dallas	84,833	68,088	95.0
Denton	5,391	4,819	10.2
Tarrant	<u>33,724</u>	<u>31,176</u>	<u>36.4</u>
Total 4 Counties	135,780	113,489	158.6

Thus, the 1984 annual level of tax collections in the NCTCOG counties was \$158.6 million. Consequently, a tax increase of 5% would yield about \$8 million, and one of 10% would yield about \$16 million per year, assuming that property values would be unaffected by the tax increase, and that current levels are close to those of 1984.

The current effective tax rate for the NCTCOG counties in percentage terms is .13975%. If this were raised to the state average rate of .21357%, revenue collected in the NCTCOG counties would equal \$242.4 million, an increment of revenue of approximately \$85 million per year. The effective state rate exclusive of the NCTCOG counties turns out to be .23231%. If this effective rate were employed by the NCTCOG counties, the revenue collected would be \$253.6 million, an increment of \$105 million per year. (These figures are obtained as follows: .13975% comes from $158.6/113,489$; .21357% from $1197.3/560,615$; and \$242.4 million from $.0021357 \times 113,489$. The effective rate exclusive of NCTCOG

counties equals $(1197.3-158.6)/(560,615-113,489) = 1038.7/447,126 = .0023231$.

Finally, 263.6 is derived from $.0023231 \times 113,489$.)

These calculations for current revenue and their implications for a 24 year time span are summarized as follows.

<u>Source of Revenue</u>	Revenue in millions of dollars			
	Current	Increment		
	Level	Annual	Projected over	
	(Annual Total)	Current Level	24 years Low- Annual x 24	to 2010 High- Annual x 36
<u>County General Property Tax</u>	158.6	---	---	---
-increase 5%	---	8	192	288
-increase 10%	---	16	384	576
-Bring to state average rate	---	85	2040	3060
-Bring to rest of state average rate	---	105	2520	3780

Potential for Increased Revenue, County Road and Bridge Tax Of the four counties examined here, only Dallas County levies any tax at all for the Road and Bridge levy and even in that county the rate is far below the state average. Additional revenues of approximately \$8.1 million dollar a year could be raised if Collin, Dallas, Denton and Tarrant county all levied a road and bridge tax at the state average rate of .00769. This figure is obtained as follows. Taxable property equals total appraised value (Table 14) minus property exempt from the road and bridge tax (the general property and productivity exemption from Table 15). This base figure is \$113,489 million (from 135,780-4,427-17,864, all in millions). Multiplication by .00769 yields \$8.7 million; subtracting the current Dallas County figure of \$0.6 million yields the increment of \$8.1 million. Hence, revenue calculations are as follows:

<u>Source of Revenue</u>	Revenue in millions of dollars			
	Current	Increment		
	Level	Annual	Projected over	
	(Annual Total)	Current Level	24 years Low- Annual x 24	to 2010 High- Annual x 36
Road & Bridge Property Tax	0.6	---	---	---
-Bring to state average rate	---	8.1	194	292

Potential for Increased Revenue, Appraise and Tax Motor Vehicles, County Tax

Under Section 11.25 of the Texas Code, counties have the option of exempting personal motor vehicles from taxation. Denton and Dallas County have, in fact, done so, although the city of Dallas does subject vehicles to its property tax. Many other counties also exempt personal vehicles, and most of the counties that tax vehicles assess them at much less than their market value. This latter group includes Collin County, which has an extremely limited tax, and Tarrant County, with a modest tax. Current tax collections are inferred as follows:

	Number of Vehicles Registered	Appraised Value Per Vehicle	General Tax Rate in %	Current revenue in 000 dollars
Collin	160,177	0.37	0.1816	1.1
Dallas	1,590,940	0	0.1395	0
Denton	157,912	0	0.2116	0
Tarrant	923,596	\$181.00	0.1173	196.0

Inspection of a random sample of 15 Texas counties that do tax vehicles yielded per vehicle appraisals that ranged from a lower value of \$13 to an upper value of \$1,736, with an average value of \$151. These values were used to form a list of prospective appraisals, but since the \$1,736 figure itself was viewed as relatively modest, a value of \$3500 was added to the list as a "realistic" high appraised value. Number of vehicles times appraised value times general property tax rate yields the prospective current revenues shown as Table 17.

TABLE 17

PROSPECTIVE REVENUE FROM APPLYING PROPERTY TAX TO MOTOR VEHICLES

<u>County</u>	<u>Appraised Value Per Vehicle</u>	<u>Total Appraised Value in 000 dollars</u>	<u>Revenue in 000 dollars</u>
<u>Collin</u>			
very low	\$ 13	2,082	3.8
low	151	24,187	43.9
medium	1,736	278,067	505.0
high	3,500	560,620	1,018.1
<u>Dallas</u>			
very low	13	20,682	28.9
low	151	240,232	335.1
medium	1,736	2,761,872	3,852.8
high	3,500	5,568,290	7,767.8
<u>Denton</u>			
very low	13	2,953	6.3
low	151	23,845	50.5
medium	1,736	274,135	580.1
high	3,500	552,692	1,169.5
<u>Tarrant</u>			
very low	13	12,007	14.1
low	151	139,436	163.5
medium	1,736	1,603,363	1,879.9
high	3,500	3,232,586	3,790.2
<u>Four-County Total</u>			
very low	13	137,724	53.1
low	151	427,700	593.0
medium	1,736	4,917,437	6,817.8
high	3,500	9,914,188	13,745.6

These results yield the following positive revenue increments. (The \$13 appraised case is omitted because it yields a revenue decrease.)

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u>	<u>Current</u>	<u>24 years</u>	<u>to 2010</u>
	<u>Total)</u>	<u>Level</u>	<u>Low-</u>	<u>High-</u>
			<u>Annual</u>	<u>Annual</u>
			<u>x 24</u>	<u>x 36</u>
Appraise and Tax Motor Vehicles	0.2	---	---	---
-"Low" - appraised value per vehicle=\$151	---	0.4	9.6	14.4
-"Medium" appraised value per vehicle=\$1736	---	6.6	158.4	237.0
-"High" - appraised value per vehicle=3500	---	13.5	324.0	486.0

City Property Taxes

City property taxes were analyzed by developing data on the 59 cities in Collin, Dallas, Denton and Tarrant Counties that had populations of 2,500 and over in 1984. For those cities, Table 18 exhibits 1984 taxable property values, tax rates, tax levies and homestead exemptions as percentages of property values.

Potential for Increased Revenue, City Property Taxes

Applying the data in Table 18, four tax increase approaches were considered:

1. Increase the property tax rate by 5 percent.
2. Increase the tax rate in each city by 5 cents per \$100 assessed value, that is, add .05 to the tax rates shown in Table 18.
3. Eliminate the homestead exemption in those cities currently employing it.
4. Raise the tax rate by 11 percent and simultaneously increase the homestead exemption by 10 percent (where legally permissible) to keep most homeowners' tax payments virtually unchanged while increasing revenue.

TABLE 18

1984 CITY TAX DATA: TAXABLE VALUE, TAX RATE, TAX LEVY AND HOMESTEAD
EXEMPTIONS FOR CITIES WITH 2500 OR MORE POPULATION LOCATED
IN FOUR MAJOR COUNTIES OF NCTCOG PLANNING AREA

County and City	Taxable Value in Million Dollars	Tax Rate (in Percent) ^a	1984 Tax Levy in Thousand Dollars	Homestead Exemptions As Percent of Property Values
<u>Collin Co.</u>				
1. Allen	431.26	.42500	1,832.85	0
2. Frisco	199.93	.24000	479.84	0
3. McKinney	554.06	.69000	3,823.01	0
4. Plano	4,901.64	.45000	22,057.37	20
5. Princeton	36.53	.42000	153.41	0
6. Wylie	97.10	.49000	475.77	0
Total	6,220.52		28,822.25	
<u>Dallas Co.</u>				
1. Addison	1,885.13	.32000	6,032.42	40
2. Balch Springs	229.38	.49530	1,136.13	0
3. Carrollton	3,405.85	.44000	14,985.73	10
4. Cedar Hill	294.39	.50980	1,500.78	0
5. Cockrell Hill	40.60	.43000	174.59	0
6. Coppell	374.32	.46000	1,721.90	0
7. Dallas	42,126.11	.49180	207,176.19	40
8. DeSoto	571.45	.52350	2,991.55	0
9. Duncanville	920.51	.56000	5,154.87	0
10. Farmers Branch	2,569.37	.40000	10,277.50	40
11. Garland	5,009.68	.39550	19,813.29	0
12. Grand Prairie	2,746.75	.38830	10,665.65	0
13. Highland Park	894.02	.27000	2,413.84	40
14. Hutchins	78.33	.46000	360.32	0
15. Irving	6,126.34	.36290	22,232.49	22
16. Lancaster	399.37	.62000	2,476.09	0
17. Mesquite	2,239.08	.48000	10,747.57	0
18. Richardson	4,113.72	.32050	13,184.48	0
19. Rowlett	343.95	.41390	1,423.62	10
20. Seagoville	113.30	.42000	475.85	0
21. University Park	1,149.09	.39000	4,481.45	40
Total	75,630.74		339,426.31	
<u>Denton Co.</u>				
1. Colony	343.81	.38000	1,306.47	0
2. Denton	1,154.04	.59000	6,808.81	10
3. Flower Mound	247.50	.37340	924.18	0
4. Highland Village	116.46	.46400	540.38	0
5. Lake Dallas	60.88	.36700	223.43	0
6. Lewisville	943.56	.51000	4,812.17	0
7. Sanger	44.98	.48500	218.16	0
Total	2,911.23		14,833.60	

TABLE 18 (continued)

County and City	Taxable Value in Million Dollars	Tax Rate (in Percent) ^a	1984 Tax Levy in Thousand Dollars	Homestead Exemptions As Percent of Property Values
<u>Tarrant Co.</u>				
1. Arlington	6,379.55	.45200	28,835.57	30
2. Azle	168.85	.30000	506.54	0
3. Bedford	1,118.98	.36000	4,028.33	0
4. Benbrook	499.25	.46000	2,296.54	0
5. Colleyville	329.03	.52000	1,710.96	0
6. Crowley	117.09	.40160	470.22	0
7. Edgecliff Village	76.04	.18477	140.50	0
8. Euless	765.36	.44000	3,367.57	30
9. Everman	80.49	.49000	394.38	0
10. Forest Hill	209.62	.57000	1,194.85	0
11. Fort Worth	11,606.54	.67650	78,518.21	15
12. Grapevine	1,042.55	.40000	4,170.20	0
13. Haltom City	620.17	.41000	2,542.70	0
14. Hurst	948.18	.43500	4,124.57	20
15. Keller	224.96	.31000	697.38	0
16. Kennedale	79.50	.41850	332.70	0
17. Lake Worth	110.00	.22875	251.63	0
18. Mansfield	306.45	.53810	1,648.99	0
19. N. Richland Hills	1,034.45	.34500	3,568.85	10
20. Richland Hills	223.49	.30640	684.76	0
21. River Oaks	105.99	.42810	453.73	0
22. Saginaw	239.73	.44000	1,054.83	0
23. Southlake	214.81	.18100	388.81	0
24. Watauga	294.65	.29984	883.48	0
25. White Settlement	265.67	.30000	797.02	0
Total	27,061.40		143,063.29	

^a a tax rate in fraction form is listed value times .01. For example, the Arlington rate tax in fraction form is .0045200. Then, Arlington's taxable value in thousands of dollars is 6,379,550. That value times .00452 equals 28,835.57, the tax levy in thousands of dollars.

Source of data: State of Texas, State Property Tax Board, Annual Report for Tax Year 1984, Austin Texas, December, 1985.

Approach 1 is obviously straightforward, involving simple multiplication. In considering Approach 2, which consists of adding 5 cents per \$100 of assessed value to the tax rate, note that in the case of Allen in Collin County, this implies changing the percentage tax rate shown in Table 18 from .425 to .475, or changing the rate per dollar to \$.00475, or the rate per hundred dollars to 47.5 cents. Approaches 3 and 4 involve the homestead exemption. In 1984, cities in Texas had a local option to exempt up to 40 percent of the value of homesteads from property taxation. (In 1985 to 1987 the maximum legal limit on homestead exemptions drops to 30 percent and after 1987 it will be 20 percent.)

Although many cities choose not to take this option, 15 area cities, including both Dallas and Fort Worth, did choose to exempt at least some part of homesteads' valuation from property taxation. One way in which additional property tax revenue could be raised without an increase in the tax rate would be to eliminate these exemptions, yielding Approach 3. Approach 4 assumes the simultaneous increase of the tax rate by 11 percent and the homestead exemption by 10 percent, which would imply that most homeowner's tax liability would be virtually unchanged, while additional revenue would be raised from land uses other than homesteads. Current revenues and revenues collected under each approach considered are as follows (in millions of dollars):

Revenue Collections in Millions of Dollars

	<u>Current</u>	<u>Approach 1</u>	<u>Approach 2</u>	<u>Approach 3</u>	<u>Approach 4</u>
Collin	28.8	30.3	31.9	30.6	30.7
Dallas	339.4	356.4	377.2	380.7	347.0
Denton	14.8	15.6	16.3	15.2	15.6
Tarrant	143.1	150.2	156.6	153.8	151.4
Total	526.1	552.5	582.0	580.3	544.7

Applying these totals yields the following revenue increments.

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u>	<u>Current</u>	<u>24 years</u>	<u>to 2010</u>
	<u>Total)</u>	<u>Level</u>	<u>Low-</u>	<u>High-</u>
			<u>Annual</u>	<u>Annual</u>
			<u>x 24</u>	<u>x 36</u>
City Property Tax Collections	526.1	---	---	---
-Increase 5%	---	26.4	633	950
-Increase tax rate in each city by .05	---	55.9	1340	2010
-Eliminate homestead exemption	---	54.2	1300	1950
-Raise local tax rate 11% and increase homestead exemption 10% - shifts tax burden toward non-residential property	---	18.6	446	670

Sources

State of Texas, Property Tax Board, Annual Report for Tax Year 1984, Austin, Texas, December, 1985.

State of Texas, Property Tax Code, Chapter 11, Section 11.25.

State of Texas, Department of Highways and Public Transportation, Transportation Planning Division and Finance Division, Texas Transportation Finance Facts, 1984.

The sources of the appraised values for vehicles were:

- "Very low" - The lowest appraised value by counties appraising vehicles, that of Shelby Co. (\$13)
- "Low" - The current average of appraised value by all counties carrying out appraisals. (\$151)
- "Medium" - The current maximum appraised value, by Donley Co. (\$1736)
- "High" - Approximately twice the medium (\$3500)

The City of Dallas does appraise and tax motor vehicles as a component of the city property tax. The values shown are for county property taxes.

VII. VEHICLE LICENSE FEES AND REGISTRATION FEES

Overview

Definition

A variety of fees and taxes imposed by most states on vehicle owners as part of the vehicle registration process. These are usually considered a charge for access to the system and are not based on the use of the system. Some part may be returned to the locality.

Examples

Florida, Pennsylvania, Texas

Financial Results

Revenues are generally significant and predictable over time. In Florida in fiscal year 1986 about \$294 million was generated from license fees and registrations, excluding mobile homes. Of this amount, \$227 million went to the state Department of Transportation. In Pennsylvania, \$410 million was collected from licenses and registration during 1985/86 with a basic drivers license costing \$5/yr and registration \$24/yr. In 1984 the state of Texas collected \$382 million in registration fees. In the NCTCOG Program planning area, \$90.4 million was collected in general registration fees. In addition, currently about \$15 million is collected by a \$5 charge per vehicle for county road and bridge fees.

Major Issues

Legal/Administrative There are no problems with most vehicle fees as they have been a traditional mechanism for raising revenues and regulating vehicles for many years. There is a high administrative cost, usually viewed as necessary given the regulatory importance of licensing and registration.

Political The taxes are often considered progressive in that they tax upper-income individuals who tend to own cars. However since they are collected at a single point in time they are more visible than taxes collected over time and are therefore more likely to be scrutinized by the public.

Economic The fees are often justified on regulatory grounds as opposed to revenue grounds. Since the high administrative costs associated with these fees would exist in any event because of their regulatory importance, their use for revenue generation involves minimal additional cost.

VII. VEHICLE REGISTRATION FEES

Detail

Texas vehicle registration fees currently consist of general registration "license fees" and the County Road and Bridge Fee of \$5 per vehicle. Each will be considered in turn.

General Registration "License Fees"

Current Operation When Texas counties collect revenue for motor vehicle registration, a portion of it is retained for county use in the locally controlled County Road and Bridge Fund and a portion is passed on to the State Highway Fund. Under the current legislative formula, approved in Senate Bill 150 in 1981, counties "...retain the first \$50,000 plus \$350 for each mile of county maintained roads up to 500 miles. Thereafter the county retains fifty percent of the next \$250,000. Under this formula a county may retain up to \$350,000... The remainder of the money collected goes to the State Highway Fund." (p. 34)

Thus some counties pass the vast majority of registration fees to the state while others retain a significant share. In 1984, for example, Tarrant County passed \$26,955,942 in registration fees to the state fund and kept only \$350,000 in revenues. Rusk County also kept \$350,000 in revenues but passed only \$847,842 to the state. Because the counties in the NCTCOG area have very high levels of vehicle registration, the portion of motor vehicle registration fees retained for local use tends to be very small. In total, Collin, Dallas, Denton and Tarrant County paid more than ninety million dollars to the state for vehicle registration fees in 1984 but retained only the amounts allowed by formula - The \$350,000 cap in the case of Collin, Denton and Tarrant County, and \$338,000 in the case of Dallas County (because it maintained somewhat less than

500 miles of road.) Consequently, while the State of Texas returned an average of 21.7 percent of registration revenues to counties, the four NCTCOG counties received only about 1.5 percent of locally generated registration revenue.

Potential for Increased Revenue, General Registration "License Fees"

Counties in the local area could raise substantially increased revenues if the \$350,000 cap were lifted or if the funds were distributed on the basis of a formula that weighted local inputs to the state coffers more heavily. The following tabular enumeration shows local revenue retained locally under the current system and under three alternative formulas.

1984 Allocation of Vehicle Registration Fees

County	Total Vehicles	Total Collections (000's of \$)	Current	County Receipts (000's of \$)		
				No-Cap: Formula(1)	Proportional To Dollars: Formula(2)	Proportional To Vehicles: Formula (3)
Collin	160,177	4,574	350	2,512	993	1,124
Dallas	1,590,940	51,855	338	26,141	11,257	11,162
Denton	157,912	4,594	350	2,522	997	1,108
Tarrant	923,596	29,120	350	14,785	6,321	6,478
4 County Total	2,832,625	90,413	1,388	45,960	19,568	19,872
State	13,508,355	436,586	94,774	N.A.	94,774	94,774

The entries under the heading of Formula (1) show the amount of revenue local governments would be allowed to retain if the state simply lifted the \$250,000 cap on the amount of registration fees of which the county retained 50 percent. This sort of plan would, of course, cost the state highway fund a great deal of revenue. Under this plan, Collin, Dallas, Denton, and Tarrant counties would have received almost forty-six million dollars in 1984. This is more than thirty-three times as much as they actually received.

An alternative approach would be to allow the state to retain its current (78 percent) share of vehicle registration revenues but to distribute the remaining revenues to counties on the basis of total revenues paid in by each county. Entries under the heading of Formula (2) show the distribution of revenues in this case. As a final alternative, the state again would retain its current share of vehicle registration revenue but local revenues would be allocated on the basis of number of vehicles registered rather than dollars collected, with the distribution of revenues shown under the heading of Formula (3). Of course, Formulas (2) and (3) are quite similar, and yield approximately the same total local revenue - about 14 times the current amount collected. Summarizing these results and their implications for future levels of revenue, the following is obtained.

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u> (Annual Total)	<u>Annual</u> Current Level	<u>Projected over</u> 24 years to 2010 Low- Annual x 24	<u>High- Annual x 36</u>
<u>General Registration Fees</u>				
90.4 million collected by state	(90.4)	---	---	---
1.4 million returned to counties	1.4	---	---	---
Given minimum amount at 100% retention by formula, and then:				
- county retains 50% of receipts	---	44.6	1070	1605
- total to counties in proportion to revenue paid	---	18.2	437	655
- total to counties in proportion to vehicles registered	---	18.5	444	666

County Road and Bridge Fees

Current Operation Currently, counties have the option of collecting a fee of \$5 per passenger vehicle as a road and bridge fee, in addition to the general state registration fee. The tax was put into effect by the state legislature and may

be changed only by state legislation. Of the \$5 fee, \$4.85 is retained by the county and 0.15 is turned over to the state.

Potential for Increased Revenue, County Road and Bridge Fees

There are approximately 3 million vehicles in the NCTCOG Program Planning area, yielding current revenues of \$15 million, given a \$5 fee per vehicle, with \$4.85 retained locally. The effect of increased fees are then easily calculated, with 3 million x \$4.85 yielding \$14.55 million.

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u> <u>Total)</u>	<u>Current</u> <u>Level</u>	<u>24 years to 2010</u> <u>Low-</u> <u>Annual</u> <u>x 24</u>	<u>High-</u> <u>Annual</u> <u>x 36</u>
County Road and Bridge Fees	14.55	---	---	---
- Raise fee \$1 to \$6	---	2.9	70	105
- Raise fee to \$10	---	14.6	350	525

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Unpublished calculations of State of Texas Department of Highways and Public Transportation, Motor Vehicle Division, Allocation of Vehicle Registration Fees. Austin, Texas (Available in UTD library under call number H 1409.6 R263 fee).

State of Texas, General & Special Laws, Vol 1, 67th Legislature Regular Session, 1981, chapter 1-506, pp 473-476.

Contact: David Garrett, Accounting Division, Dallas County

VIII. NEW TYPES OF TAXES AND REVENUE SOURCES

VIII.A PAYROLL TAX

Overview

Definition

A percentage tax on all payrolls in a defined geographic area, considered a business expense for corporate tax purposes. Exemptions may be given to specified non-profit organizations. Tax coverage may include those who are self-employed.

Examples

Portland, OR; Cincinnati, OH.

Financial Results

Significant revenues may be generated at low cost which may be completely or partially dedicated to transportation purposes. A three county area including Portland, Oregon collected \$47 million net of collection costs in fiscal year 1986 with a 0.6 percent payroll tax. The revenues were dedicated to transit purposes. Cincinnati, Ohio has an 0.3 percent tax, applying both to city residents and workers, with revenue going into a fund for transit operations. In 1986, the fund had a balance of \$18 million.

Major Issues

Legal/Administrative A payroll tax requires state-enabling legislation and may be restricted or prohibited by state constitutions. After being challenged in court by the Portland business community it was found to be a constitutional tax.

Political The tax may be unpopular to the business community. If the tax is collected at the employer level, however, the tax may be relatively invisible to the average working person.

Economic It can partly be justified by the gains to employers from a more reliable work force due to better traffic conditions and from an increase in labor morale due to reductions in traffic congestion. There are questions concerning its equity due to the varying degrees that workers and employers rely on the transportation network.

VIII. NEW TYPES OF TAXES AND REVENUE SOURCES

VIII.B AVIATION FUEL TAX

Overview

Definition

A tax placed on commercial and/or noncommercial aviation fuel. The revenue may be used for non-aviation purposes such as highway construction.

Example

Florida

Financial Results

Florida has a 5.7¢ per gallon tax on aviation fuel purchased in the state. The current net yield after deductions for charges and a rebate to airlines based on wages paid by them to in-state employees is approximately \$30 million a year.

Major Issues

Legal/Administrative The use of an aviation fuel tax has been challenged by both domestic and foreign carriers in court. The argument has been that it is unconstitutional to charge an aviation fuel tax that is used for highway construction. The Florida Supreme Court found it legal in 1983 and, on appeal to the U.S. Supreme Court, it was also found constitutional for both domestic and foreign carriers.

Most states have some form of aviation fuel tax. The two forms primarily in use are (1) prorating the tax to apply to fuel actually used while operating within the state and (2) taxing all fuel purchases in the state regardless of the locations traveled.

Political Public acceptance has been relatively high since the tax is not very visible. Airlines have strenuously opposed it and have sought to reduce their purchases of in-state fuel by using exempted bonded fuel and by tankering of fuel.

Economic Airports generate concentrated highway use both in the short and long term, and additional development in the long term, adding to transportation requirements. Hence, the tax can be viewed as a form of impact fee.

VIII.C LOTTERY

Overview

Definition

A game of chance in which prizes are distributed on the basis of winning numbers drawn by lot. Lotteries are conducted by 22 states and the District of Columbia and involve a number of functions including marketing, printing and distributing tickets, maintaining sales outlets and developing rules and regulations for conducting each game. Only two states dedicate a portion of lottery receipts to transportation.

Examples

Arizona, Pennsylvania (Dedicate some receipts to transportation)

Financial Results

Gross revenues from lotteries vary from \$5.2 million in Vermont to almost \$1.3 billion in Pennsylvania with net revenues to the state ranging from \$1.2 million in Vermont to \$600 million in New York. The revenues will vary by the number and type of games offered and the number of players. Revenue of \$23 million was generated for transportation in 1985/86 in Arizona. In Pennsylvania the \$586 million raised in revenue in 1985/86 was dedicated to Senior Citizens programs with transit programs aiding Senior Citizens explicitly specified.

Major Issues

Legal/Administrative There must be state-enabling legislation for the state or locality to operate a lottery. This may (as in Texas) require a constitutional amendment.

Political There is strong opposition from religious groups who equate lotteries with the sins of gambling, by those who feel it will attract organized crime and by those who feel the poor will be hurt by it. Nevertheless the public in most states appear to support lotteries as every state that has had a public referendum on a lottery has given it a majority vote.

Economic A lottery is a voluntary program and since participation is on a voluntary basis, the program can be viewed as efficient. It is often argued that lotteries are inequitable because the poor and those with little education play the most. However, one study found that the largest group of players were those in the \$25,000 to \$40,000 a year group and that most players had completed high school and a significant number (40 percent) had finished college. Concerns are also expressed about encouragement of compulsive gambling, but it seems plausible that compulsive gamblers will seek out other forms of gambling in any event - legal or illegal.

VIII.A PAYROLL TAX

Detail

Case Example - Ohio

Cincinnati has a tax officially designated as a payroll earnings tax that falls under the heading of a payroll tax. The tax of 0.3 percent is deducted from the paycheck of employees who either live or work in the City of Cincinnati. Revenue raised goes into the Transit Fund where it is used to pay for operating expenses.

The tax was locally passed in 1972 and put into effect in 1973, empowered by the state which at the time did not have a state income tax. Politically there was little problem in passing the original tax, in large part due to the city's intention of purchasing and operating a nearly bankrupt private transit system and lowering the bus fare to 25 cents. Recent attempts to broaden the tax to include surrounding counties, however, have failed.

In 1986, the fund had a balance of \$18 million. This represents a significant portion of the \$42 million budget for transportation administered in part by the Southwest Ohio Regional Transit Authority. There have been moves recently to either allow the fund to be used for repairing streets or to actually give control of the revenue raised to the city for allocation. Both moves have, to date, been resisted.

In fiscal year 1986, the payroll tax netted \$44 million after collection costs. The self-employment tax netted \$2.7 million. The collection costs are fairly low, averaging about two percent of revenues. Compliance with the tax is considered high.

The business community has lobbied against use of the tax but in a court challenge it was found to be constitutional. It is considered to be a fairly invisible tax to the average working person since it is collected at the firm rather than at the employee level.

Case Example - Oregon

Oregon is the only state to date that has allowed a payroll tax to be used to generate revenues for transit financing. The Tri-County Metropolitan Transportation Authority, composed of 15 cities centered around Portland, has imposed a 0.6 percent gross payroll tax, the maximum permitted by the 1970 state legislation. The revenue may be used for both operating and capital expenditures, but operating costs must be paid first from the payroll tax.

The tax is collected quarterly from businesses by the State Department of Revenue. There is no limit to the amount that can be collected from businesses. The self-employed were not originally subject to the tax, but they have since been included through a 0.6 percent self-employment tax based on net income. State government agencies operating in the area are also included, with the state contributing an amount equivalent to what would be collected by the tax. There are exemptions to the tax including Health Maintenance Organizations, farm laborers and non-profit organizations.

Potential for Increased Revenue, Payroll Tax

The Portland, Oregon gross payroll tax of 0.6 % and the Cincinnati, Ohio gross payroll tax of 0.3% are both employed in transportation finance and can be viewed as benchmark levels. Estimated Dallas-Fort Worth metropolitan area income equalled \$51.9 Billion in 1985 (DRI data). For the United States, payroll as a share of income equals approximately 60 percent. (From Survey of Current Business, June 1986, p.7: U.S. wage and salary income relative to total

personal income was .595.) Hence, the Dallas-Fort Worth metro area payroll can be estimated as currently about \$30 billion. Payroll tax proceeds then are as follows:

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u> <u>Total)</u>	<u>Current</u> <u>Level</u>	<u>24 years to 2010</u> <u>Low -</u> <u>Annual</u> <u>x24</u>	<u>High -</u> <u>Annual</u> <u>x 36</u>
<u>Payroll Tax</u>	0	---	---	---
- 0.1% payroll tax	---	30	720	1080
- 0.3% payroll tax	---	90	2160	3240
- 0.6% payroll tax	---	180	4320	6480

Sources

Contact (Oregon): David Auxier
Tri-County Metropolitan Transportation
District
4012 S.E. 17th Avenue
Portland, OR 97202

503-239-6401

Contact (Ohio): Thomas Ford, Internal Auditor
Southwest Ohio Regional Transit Authority
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513-651-3020

References:

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Data Resources Incorporated (DRI), Forecast of Revenues from the Dallas Area Rapid Transit Tax: State and Local Government Practice, May, 1986.

VIII.B AVIATION FUEL TAX

Detail

General Information

It can be argued that airports generate and concentrate traffic, both by way of trips to and from airports, and - in the long run - by generating real estate development near airports. Hence, it can further be argued that impact fees ought to be imposed on airports, with one version taking the form of taxes on fuel use by airplanes. Magnitudes of aviation fuel have been estimated as 1540 million gallons of aviation fuel for the state of Texas as a whole in 1985, with 2200 million gallons of use forecast for the year 2000.

Two-thirds of U.S. airline passengers enplane at large hubs, with Dallas-Fort Worth and Houston comprising the large hubs in Texas. Of those two, the Dallas-Fort Worth (D/FW) airport handles twice the passenger load of Houston (18.5 million versus 9.2 million). Assuming that Dallas-Fort Worth and Houston handle two-thirds of the state's air traffic between them implies that D/FW handles approximately 45 percent of the traffic, and presumably uses 45 percent of the fuel (based on data in 1986 Statistical Abstract, p. 618). In turn, given 1540 million gallons of fuel for the state implies about 700 million gallons of use annually in the local area.

Potential for Increased Revenue, Aviation Fuel Tax

Assuming 700 million gallons of aviation fuel use locally yields the following tax estimates for the listed tax rates:

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u>	<u>Current</u>	<u>24 years to 2010</u>	
	<u>Total)</u>	<u>Level</u>	<u>Low -</u>	<u>High -</u>
			<u>Annual</u>	<u>Annual</u>
			<u>x 24</u>	<u>x 36</u>
<u>Aviation Fuel Tax</u>	0	---	---	---
- If 1¢ tax/gal.	---	7	168	252
- If 2¢ tax/gal.	---	14	336	504
- If 10¢ tax/gal.	---	70	1680	2520

Sources

Texas Aeronautical Facilities Plan, August , 1984; Citations from that source were obtained from Merle Goodwin, Department of Transportation, Texas Aeronautics Commission.

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VIII.C LOTTERY

Detail

General Information

In 1985, the nation's 23 state lotteries grossed \$9.99 billion with a net return to state governments of \$4.05 billion. The new California lottery sold more than \$800 million in tickets in its first three months and netted \$270 million. First year sales seem likely to exceed \$2 billion. In 1985, the eight most populous lottery states sold an average of \$94 in lottery tickets per state resident and netted \$38 per resident. Similar financial results in Texas would mean \$1.5 billion in gross revenue and about \$600 million a year in net receipts. No state has ever lost money on a lottery, and no lottery measure has ever been defeated in a public vote. Polls in lottery states reflect strong public support, and a poll in Texas in 1984 revealed 66 percent support for a lottery in the state.

Case Example - Arizona

Arizona currently runs a parimutuel weekly game called "The Pick" and has run an instant prize game since the passage of a citizen's initiative in November 1980. The prize amounts are determined by weekly sales and the number of winners for that week. The lottery is scheduled for reconsideration in 1991.

Revenues after prizes and costs are earmarked for transportation projects in cities and towns and may be used either for operating or capital expenditures. In addition, if the maximum allowed by law is deposited into the transportation fund, then cities are allowed to use up to 10 percent of the funds as matching revenue for cultural projects. An exception to this is that cities with a population over 300,000, consisting of Phoenix and Tucson, must use the funds for operating or capital expenditures devoted to mass transit.

For the year ended June 30, 1986, the Arizona lottery grossed \$121 million. Of this amount, 45 percent was legally required to be allocated to prizes and 6 percent to retailer commissions. Local transportation is entitled to 30 percent of gross revenues to a maximum of \$23 million with any excess allotted to the Highway User Revenue Fund. For fiscal year 1986 this resulted in cities and towns getting the maximum \$23 million, allocated to them on the basis of population. An additional \$14 million was deposited to the Highway User Revenue Fund.

Phoenix, the largest city in Arizona, received \$8.4 million in fiscal year 1986 which it used for a variety of mass transit programs. Tucson, the second largest city, received almost \$3.6 million, representing approximately 23 percent of the city's mass transit operating and maintenance budget. Mesa, a city not required to use its lottery revenues solely for mass transit, allocated a large portion of its approximately \$1.9 million to purchasing rights-of-way and street construction.

Case Example - Pennsylvania

Pennsylvania has had a lottery since 1972 which dedicates proceeds to the State Department of Aging and the Department of Transportation. The revenues are required to benefit senior citizens.

In Fiscal Year 1986, the Pennsylvania lottery grossed \$1.3 billion. Legally, 50 percent of the revenue must be paid out in prizes. Net revenue after costs used to benefit senior citizens was \$586 million. Transportation programs that benefit from the lottery include a subsidy for the elderly for the use of mass transit services in general and a 75 percent discount for taxi fares.

The lottery was enacted after a long public airing of the controversial aspects of a lottery. In particular the "sins" of gambling, the opportunities for corruption and the participation of the poor was debated. Establishing senior citizens as the beneficiaries was the final compromise that emerged.

Potential for Increased Revenue, Lottery

For the year ended June 30, 1986, the Arizona lottery grossed \$121 million with a net of \$37 million allocated to cities and towns and to the Highway User Revenue Fund. The population of Texas is approximately five times that of Arizona, while the NCTCOG planning area accounts for approximately one-fifth of the state's population. Hence, Arizona's net returns can be treated as a good estimate of prospective net returns to the NCTCOG area. Using that \$37 million figure yields:

<u>Source of Revenue</u>	<u>Revenue in millions of dollars</u>			
	<u>Current</u>	<u>Increment</u>		
	<u>Level</u>	<u>Annual</u>	<u>Projected over</u>	
	<u>(Annual</u>	<u>Current</u>	<u>24 years to 2010</u>	
	<u>Total)</u>	<u>Level</u>	<u>Low-</u>	<u>High-</u>
			<u>Annual</u>	<u>Annual</u>
			<u>x24</u>	<u>x 36</u>
Lottery	---	37	890	1335

Sources

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Prepared for Urban Mass Transportation Administration,
December, 1985.

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Fiscal Notes, May, 1986.

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IX. BORROWING STRATEGIES

MECHANISM (1): ARBITRAGE

Overview

Definition

Arbitrage is a purchase in one market at a lower price and a sale in another market at a higher price of the same or equivalent item. State and local governments have had great opportunities for arbitrage because their bond issues typically carry lower interest rates than federal government or private market securities, because of favorable federal tax treatment of interest payments. Hence, proceeds from the sale of state and local bonds can be reinvested at higher interest rates.

Example

Toll Road financing in Harris County, Texas. Texas Turnpike Authority, Dallas North Tollway.

Financial Results

In financing toll roads in Harris County, Texas to serve the Houston metropolitan area, over \$500 million in revenue bonds were issued. The revenue was used to purchase higher yielding federal government securities with the same maturity date as the revenue bonds. At the time, federal securities yielded about one percent more in interest than municipal bonds. Thus, the net gain on the sale was on the order of \$5 million. The Texas Turnpike Authority has also successfully used arbitrage in financing the Dallas North Tollway, with a considerable build-up in cash reserves the result. In the recent past, arbitrage potential ranged as high as a 4% differential between interest rates paid by state and local agencies and interest rates received.

Major Issues

Legal/Administrative Operating under IRS narrowly defined rules, public entities can arbitrage money borrowed at tax-exempt rates and invest it in financial instruments paying higher interest rates. The rules, which must be strictly followed, as of 1982 allowed reinvestment of bond proceeds for a period of up to 3 years on that portion of proceeds to be used to pay for capital projects; and reinvestment of debt service reserve funds was allowed for the duration of the bonds. The new federal tax law places a 6 month limit on arbitrage mechanisms; beyond that period, penalties will be imposed.

Political Bond issues often involve voter referendums.

Economic The change in the tax law will likely complicate planning and construction scheduling as well as reduce total funds available for toll roads and other activities dependent on arbitrage.

IX. BORROWING STRATEGIES

MECHANISM (2): EXTERNAL CREDIT SUPPORTS

Overview

Variations: Municipal Bond Insurance, Bank Line of Credit, Revenue Bonds backed with a Full Faith and Credit Pledge, Bond Pooling

Definition

An external credit support is the use of another entity's credit bearing capability to lessen the risk to the bond buyer and lower the cost of borrowing for the bond issuer.

In order to reduce risk, an entity will seek an external mechanism that will assume the debt in case of default. Such a mechanism will improve the rating and lower the interest cost. Bond insurance requires a premium while other options can be less costly to arrange.

Bond pooling is the process of combining the funding of capital projects from several governmental units in one bond issue. The advantage of pooling is that it makes the overall package more stable and of less risk to the investor.

Example

The Texas Small Business Industrial Development Corporation created a \$750 million pool to fund infrastructure and capital improvements in Texas cities. The pool insures that participating Texas cities and counties will receive an AAA rating on their bonds despite the worsening State economy. (Dallas Morning News, July 27, 1986, p.5H)

Financial Results

A letter of credit from an AAA bank can raise a BAA bond to an AAA level and lower its interest cost. The annual charge for these services can be in the neighborhood of .50 percent of authorized funds. Municipal Bond Insurance can cost anywhere from 0.1 to 2.0 percent of the issued amount depending on the degree of risk.

Major Issues

Legal/Administrative Arranging an external credit support relationship between public entities may not be permissible by law.

Political Arranging an external credit support capability requires a reciprocating relationship. Both entities should hold space for the other in their loan portfolios.

Economic The primary benefit is the reduction of risk facing the individual borrower. However, some analysts believe that small groups of pooled projects are not better off than individual projects, in terms of bond ratings. Apparently, unless a major fund is involved, the analysis of the individual projects will prevail in the minds of the ratings service.

IX. BORROWING STRATEGIES

MECHANISM (3): LEASING OPTIONS

Overview

Variations: Sale-Leaseback, Safe Harbor Leasing, Lease Purchase,
Leverage Leasing

Definition

The leasing options employ a third party who buys a property for use by a public entity and leases it back to the public entity. The lease can be a true lease or a financing lease. A true lease allows the public entity to use a privately owned property. The private owner can finance the property with tax-exempt debt, but upon sale must sell the property at fair market value. A version of a true lease is a sale - leaseback in which a public property is sold to a private owner for lease back to the original public owner. Safe Harbor Leasing is a lease form recognized under the Economic Recovery Tax Act which allows the sale of privately held tax write-offs to other private companies. A financing lease is a conditional sale over time from a private investor to a public entity. This form, also called lease-purchase, requires payments be divided into principal and interest components. A version of this is a leveraged lease which requires participation of a lender as a third party provider of capital to the lessor.

Example

Industrial revenue bonds; these allow the investor the opportunity to buy a property for economic development with a tax exempt option and lease the property to government or to an industry.

Financial Results

A leasing option could save anywhere from 2 to 4% in interest points. This would convert into an additional \$20,000 to \$40,000 for each one million dollars borrowed. Those savings, if obtained annually in perpetuity, would be worth \$200,000 to \$400,000 if capitalized at 10 percent.

Major Issues

Legal/Administrative The tax law governing these options has changed three times in the last five years with the newest and most restrictive tax law approved for implementation as of 1987. The effect of the new law is to raise interest rates that governments must pay and to impose a ceiling on the amounts of bonds that may be issued under this option.

Political Some political actors regard the combination of private and public financial means as an inappropriate role for government.

Economic All of these options offer the lessor a number of options for earning tax-exempt interest, plus claiming depreciation and tax investment credits.

IX. BORROWING STRATEGIES

MECHANISM (4): STANDARD OR "VANILLA FOLDER" BOND

Overview

Variations: General Obligation Bonds, Revenue Bonds

Definition

General Obligation Bonds are secured with the "good faith and credit" of the local government. This means that the government will guarantee the payment of the bond with the pledge to use its taxing capability. If the government has a limitation imposed by the state or its people through referendum, the ability to guarantee repayment is correspondingly limited. Such limitations often lower the credit of the government issuing the bonds.

A revenue bond is guaranteed by the fees to be gained by the proposed governmental venture enterprise. Since it is a venture enterprise, its risk is considered higher by investors, and correspondingly, a higher interest rate has to be charged. The amount depends on the types of venture for which the bond is to be used.

Both bonds are considered the standards in the bond industry. Because of this status, they have gained the in-house name of "Vanilla Folder" bonds.

Financial Results

The value of savings of a half percent for a 20 year bond with semiannual payments is \$5,125 for each one million dollars borrowed; capitalizing the savings at 10% yields a net value of \$51,250.

Major Issues

Legal/Administrative The state gives the right to a local entity to issue debt. This debt authorization can restrict the type of debt incurred. A specific authorization must exist for general obligation bonds to be used. For tollway authorities, revenue bonds are the standard means with which to incur debt. The new federal tax law places special tests and restrictions on the use of these bonds.

Political General obligation bonds can raise the rate of property assessment for a community. This is a sensitive issue for most communities.

Economic A general obligation bond is considered the lowest risk bond in which to invest. It carries the lowest cost for the issuer. A transportation related bond is usually a quarter to a half percent less in interest rate if it is a general obligation bond rather than a revenue bond.

IX. BORROWING STRATEGIES

MECHANISM (5): INNOVATIVE BOND ISSUES

Overview

Variation: Original Issue Discount Bonds, Zero Coupon Bonds

Definition

An Innovative Bond Issue is a bond constructed to attract investors who usually do not buy bonds. In order to do this a number of unusual discount or coupon related features are added to the bond.

An Original Issue Discount Bond (OID) is a long term bond offered at a rate of interest substantially less than prevailing rates. The bond is originally sold at a price considerably less than its stated (or par) value so that a capital gain is created, which is given favorable treatment by the tax laws.

Zero coupon bonds (ZCBs) are bonds sold without coupons, which is another term for interest bearing progress payments. ZCBs are sold at prices substantially below their face value, and upon maturity, the issuer pays the face value of the bond in one lump sum. The difference between the bond's purchase price and its value at maturity provides a yield that is competitive with other investments in the marketplace. The IRS considers the discount to be interest income and tax-exempt for bonds issued by public entities. (DOT-1-82-53, p.39)

Examples

1981 New Jersey Health Care Facility Financing Authority Bonds (OID), and 1982 Massachusetts Bay Transportation Authority General Transportation System Bonds (ZCB).

Financial Results

Depending on the structure of the overall issue, the cost of raising funds using OIDs and ZCBs could range from 0.5 to 2.0 percent less in interest costs than if traditional bonds are used.

Major Issues

Legal/Administrative The recent tax laws may impede the use of innovative bond issues.

Political Few political problems are apparent in the literature on the topic.

Economic Reduction in preferential tax treatment of capital gains should reduce the attractiveness of this form of bonds.

IX. BORROWING STRATEGIES

Detail

General Information

Traditionally, government securities are debt obligations with fixed maturities and fixed interest rates. Instead of seeking a long term loan from a bank, a municipality offers its long term debt in the form of bonds. These debt instruments have a vocabulary all their own. For example, a coupon, which is a component of some bonds, can be exchanged for an interest payment due on a specific date, usually at semiannual intervals. A call option allows the bond issuer to call in the bond for payment of the principle prior to its stated maturity date. A put option allows the bond bearer to submit the bond for payment of principal prior to its maturity date.

The two major ways of issuing bonded debt are through the use of General Obligation Bonds and Revenue Bonds. General Obligation Bonds are sold with a pledge to use the general taxing power of the jurisdiction to guarantee the repayment of the bonds. Usually this means that the property tax or some other tax will be used to generate repayment funds. These bonds carry the lowest interest rates that are offered on municipal bonds. In recent years, limitations on the use of the property tax to support public services has resulted in higher interest costs to the municipality due to a perception that the risk on general obligation bonds has increased.

Revenue Bonds are instruments whose principal and interest are payable exclusively from the revenue of publicly owned enterprises. In addition to a pledge of revenues, such bonds sometimes contain a mortgage on the enterprise's property. Revenue bonds typically carry a higher interest rate than general obligation bonds, usually a minimum of a half percentage point higher for comparably rated AAA entities.

What is creative financing? During the recently ended period of abnormally high interest rates many creative alternative mechanisms of debt finance were developed. Borrowing options such as lease-purchase and interest arbitrage received considerable attention. Peterson and Hough cite four motivations in this shift to "creative financing": (1) efforts to shift interest rate risk from the investor to the borrower; (2) efforts to enhance the credit worthiness of borrowers by shifting credit-related risks to third parties; (3) actions that increase the types of returns available beyond regular receipt of interest income payments, and (4) instrument designs that appeal to the needs of specialized investor groups.

Despite considerable interest in developing borrowing strategies geared to one or more of these motivations, the actual impact is debatable. Experts in the field question the profitability of some of these new options. Furthermore and most important, the federal tax bill of 1986 has clouded the legality and desirability of many of these new options. Experts are urging municipalities to return to more traditional financing methods using general obligation and revenue bonds.

How is a credit rating established? A credit rating is set by a ratings service, of which there are two. Standard and Poors rates credit worthiness for municipal bonds on a scale that ranges from AAA to D. Moody's Investor Service uses an Aaa to C rating. Both rating systems reflect degree of risk. Moody's ratings, for example, can be summarized as follows:

Aaa: Best investment prospects
Aa : High quality
A : Upper medium grade with many favorable attributes

Baa: Medium grade
Ba : Several speculative elements
B : Lacks characteristics of a desirable investment

Caa: Of poor standing, may be in default
Ca : Speculative in a high degree
C : Extremely poor prospects

Generally, as the financial health of both the government and its local economy improves, the credit rating improves. If the local economy declines, the potential obligations of the local government increase at the same time that corresponding potential revenues contract.

The actual interest rate is the product of two factors. One factor is the credit rating, which is an index of the risk of defaults, and the other is the type of bond offered. The more attractive the bond, the lower the interest rate. General obligation bonds are generally considered more attractive than revenue bonds. Attractiveness can be further increased by adding a "put" option (sometimes called a demand option) and a regular payment structure.

Innovations in creative financing have included a number of mechanisms which lower the risk to the investor. One such innovation is municipal bond insurance which insures against default. A second is a bank line of credit which provides a source of funds for the municipality's liquidity. Such a device can be useful when obligations are increasing at financially difficult times. A third is a mechanism called bond pooling, which combines the funding of capital projects from several governmental units into one issue so that risk can be spread and

the rating improved. A fourth is the issuance of revenue bonds guaranteed by the general taxing power of the municipality if it turns out that the enterprise revenues are insufficient to pay the bonds.

How is a bond issued? Once a municipality has defined the bond issue, it must seek a buyer. This is usually done through a dealer who buys and sells bonds. The dealer can take a long position on the bond which means that he owns it, or a short position which means that he has agreed to sell and deliver bonds not yet owned by him.

Bonds are usually offered by competitive sale to institutional investors. In recent years, an increasing number of issues have been offered by negotiation, which means that potential investors were identified and the interest rate negotiated with them.

The total cost of a bond issue is composed of the interest cost, the cost to float the bond, and the cost of debt service. Two elements compose the flotation cost. The first is the dealer's spread which is the difference between his buying price and his selling price for the bond issue. The second is the marketing cost of the issue. A key component of the marketing cost is the advertising required to attract investors.

This cost should not be confused with the marketing efforts of the municipality to the rating service. Some municipalities, such as the City of Richardson, have invested considerable staff expenses in developing media and supporting materials for presentation to the rating service. Such efforts have resulted in higher ratings and lower interest costs.

The trend in innovative financing During the period of high interest rates alternative mechanisms were developed to offer municipalities additional tools with which to secure additional capital. A key factor in the development of these options is the use of tax exempt status to attract additional investors. Tax exemption increases the after-tax return of these financial instruments. In recent years, the use of tax exemption in these new alternatives has been cut back by Federal legislation.

Some of the new options that have been developed include tax exempt industrial bonds, lease-purchase arrangement, and interest arbitrage.

Payment from borrowed funds vs. operating funds A highway or other capital project has costs which can be paid out of borrowed funds such as bonded debt or out of normal operating revenue which will reduce the amount of required borrowed funds. Tasks such as preliminary planning, real property rental, protective services, preparation for opening, and general administrative services are functions that should be accounted for as costs to a capital project but are also costs that can be paid for out of general operating revenue. Such a move can reduce the funded debt needed to support a project by as much as 10% (Moak, p. 156).

Cash flow and interest arbitrage By delaying the payment of obligations for reasonable periods of time, the return on short term invested funds may be increased. When major loans are involved, short term investment can yield substantial returns. Such a practice is referred to as interest arbitrage.

Interest arbitrage is the process of privately investing funds borrowed at low interest rates in financial instruments that return a higher rate of interest. The revenue potential is dependent upon the differential between the municipal lending rate and the market rate, usually around 3-4%, which can generate significant amounts of revenue. For example, if \$60 million is borrowed at 8.5% by a public institution and half of the money is not needed for three years, the public institution has usually been able to reinvest the unused \$30 million at 12% for three years. The net (after payment of municipal interest) returns to the public institution are more than \$1 million.

The Texas Turnpike Authority, which is extending the North Dallas Tollway, is reinvesting its municipal bond proceeds in financial instruments paying market rates of interest, and has shown a considerable net return from the action. Return on investment has recently run around \$10 million annually, although this figure is likely to be reduced as investment funds are employed to pay for construction (conversation with Mr. Harry Kabler).

Significant legal restrictions on the use of interest arbitrage has been imposed in recent years. Most recently, new federal tax legislation will put a six month limit on arbitrage mechanisms. Beyond that limit, penalties will be imposed. Thus, the investment period will be shortened from the previous limit of three years to six months as of 1987. This should complicate highway planning and the scheduling of construction.

Potential for Increased Revenue, Borrowing Strategies

In the recent past, as much as 4% of cost could be saved by arbitrage and related mechanisms. However, the new federal tax law will likely limit gains to

a maximum of approximately 1%. Revenue implications for those cases and for type of bond employed are shown in the following list. Increments are calculated in terms of savings per million dollars, both annually and over the 24 year period, 1986-2010. Hence, in this case, there is no distinction between high and low cases.

Source of Revenue: Borrowing Strategies	Revenue in millions of dollars		
	Current Level (Annual Total)	Annual Current Level	Increment Projected Over 24 years to 2010 Annual x24
<u>Arbitrage and related mechanisms</u>			
<u>1% Cost Saving</u>			
NCTCOG "Mobility 2000" shortfall - \$6 billion or \$250 million per year over 24 year period	---	2.5	60
Recent annual highway construction levels in DFW area - about 200 million per year-- if all accounted for by bonds financing	---	2	48
<u>4% Cost Saving</u>			
If return to 4% savings rate - NCT COG "Mobility 2000" shortfall	---	10	240
Recent Annual highway construction in DFW area	---	8	192
<u>Use of general obligation bonds rather than revenue bonds</u>			
<u>(1/2% Cost Savings)</u>			
NCTCOG "Mobility 2000" shortfall	---	1.25	30
Recent annual highway construction in DFW area	---	1	24

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Contact

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APPENDIX HIGHWAY FINANCE EXPERIENCE IN CALIFORNIA

APPENDIX

HIGHWAY FINANCE EXPERIENCE IN CALIFORNIA

California is often viewed as a trend-setter. Developments in the state are perceived as portents of things to come elsewhere.

California currently is faced with a significant strategic problem.¹ It has a highway system with traffic usage near capacity. It has a political culture that is highly sensitive to environmentalists and "no-growth" advocates. It has had significant limitations placed on its capacity to raise revenue, a governor opposed to raising taxes², and a highway department apparently not very interested in innovation.³ Under these conditions a number of local actions have occurred in response, under three main headings: (1) developer impact fees, (2) increased use of local sales taxes for transportation and (3) traffic system management plans (TSMs). The TSMs are organized community efforts to reduce the flow of automobiles into an urban center. They include car pooling, buses, parking fees, and incentives for not bringing automobiles into the city.

There seems to be a rough relationship between the state of a community's development and the type of highway financing device that it emphasizes. If a community is fast-growing, it stresses impact fees. If a community is slow-growing, it is more apt to levy additional sales taxes for highway improvement. Finally, reliance on TSMs may well imply that a community is approaching the limits of its growth.

Because California's experience in highway finance seemed of particular interest in this project, a detailed investigation of its experience was carried out, both by field interviews and literature review, and is reported in this

appendix. The discussion is organized geographically, beginning with Orange County in the South, then considering the City of Los Angeles and finally concluding with the Bay Area in the North.

Orange County

Orange County has been one of the fastest growing areas in the nation. Located to the southeast of Los Angeles County, most of its growth in the 1960's was the result of people buying homes within commuting distance of Los Angeles. The main routes for the Los Angeles commute were the Santa Ana Freeway, a corridor directly to the heart of the city, and the San Diego Freeway, a route around the south side of the city.

Orange County has concentrated on developing its educational and high technology industries, and its own economy has grown at a rapid rate since the mid 1970's. It is now part of an extensive corridor of business and residential development from Los Angeles to San Diego. To accomodate this growth, Orange County must expand its highway capacity. Its County planners appear well fitted to this task, for they have a statewide reputation as being the most aggressive group investigating alternative means of financing transportation. In addition, the area is dominated by a single developer, the Irvine Company, which has been a leader in developing entire communities with green belts, activity centers, and reserved areas for shopping, working, and social-recreation activities. The large scale of the Irvine Company operation appears conducive to joint public-private financing of highways.

Transportation is the primary concern of Orange County residents, on the basis of a number of polls, but the concern is not shared at the state level.⁴ Consequently, the County is planning a number of highway developments on its own initiative. Each will be described, in turn.

Three New Freeways. The County is seeking to develop three new freeways.⁵ The first is the San Joaquin Freeway which would parallel the San Diego freeway west of Irvine and Newport Beach. The area is undeveloped. The Irvine Company wishes to develop it and wants a freeway within it to facilitate development. The second freeway planned is the Foothill Freeway, which would serve another currently undeveloped area in the northern foothills of the County. It is anticipated that residential communities will expand into that area, generating a need for a new freeway parallel to the Santa Ana freeway, which is currently congested for eight hours a day. A planned third freeway, the Eastern Freeway, would run north and south from the northern Orange County area of Fullerton and Yorba Linda, into the southern area of Irvine.

Two community based Joint Powers Authorities have been established to build the freeways. One Authority is responsible for the development of both the Foothill and Eastern freeways, while the other is responsible for the San Joaquin Freeway. Membership on the governing boards of the authorities will consist of representatives of the involved city governments, the Orange County Planning Commission and the Orange County Board of Supervisors.

It has been estimated that 40% of the cost of these freeways will be supported by developer fees. The major developer, the Irvine Company, will likely pass the cost on to its customers. It is hoped that the remaining funds needed will come from the federal government. Should federal funds not be forthcoming, then other options being considered include revenue from the property tax and highway tolls. The property tax allocation would be difficult to come by, but a cost shifting strategy has been formulated whereby some existing educational

costs would be absorbed by the state, allowing an increased investment in transportation by as much as \$25 million per year. The serious consideration of toll roads marks a break with past attitudes, for the use of tolls has been limited to bridges in California.⁶

The Golden Triangle of Orange County. High growth places often have an area designated as a golden triangle. Orange County is no exception, its golden triangle being bounded by the Santa Ana, San Diego and Laguna Freeways. The area so defined is surrounded by high technology and other industrial developments. A major shopping center and office complex is planned for the area, with total transportation costs to be absorbed by the Irvine Company. This will include the construction of arterial roads and arterial-freeway connections.⁷

The City of Irvine Developer Impact Fee. The City of Irvine is the home of Orange County Airport, which is a regional airport with limited capacity. The surrounding area was intended to be a low profile industrial and commercial area. Two story office buildings and hotels were built until the early 1980's. Soon after the turn of the decade, however, the area surrounding the airport began more intensive development. New buildings within a mile of the airport expanded from 2 stories to ten stories. The City of Irvine responded by designating an area surrounding the airport, about one mile in extent, as an impact area. Any development now occurring in the area must pay the City a \$6 per square foot charge as a traffic impact fee. The revenue collected pays for enlarged streets, improved intersections, and freeway access improvements.⁸

The Huntington Beach Super Street Demonstration Project. Beach Boulevard is a major six-lane arterial which runs north and south through Orange and Los Angeles Counties. The corridor was once on the state's transportation plan for

conversion into a freeway. It is congested to the point that 15 out of 40 intersections operate at unacceptable levels of traffic. By 2005, this figure is expected to rise to 24 out of 40, if no changes occur. A proposed set of changes would create a blend of freeway and arterial by expanding of lanes, timing of lights and restriping. A key point of interest here is that the proposal involves the cooperation of 10 separate jurisdictions.⁹

Review of the Traffic System Management Plan Options. County planners are considering the possibility of developing a traffic management plan which would help alleviate the need for transportation investment. Businesses would be encouraged by common interest or by municipal ordinance to adopt flex-time scheduling, car-pooling, and increased bus ridership. This option is under study but has not been enforced.¹⁰

Service Authority for Freeway Emergencies. Los Angeles County maintains a system of phone boxes alongside its freeways. These phones are used by motorists who need service or other assistance. Orange County has opted to develop such a system for its freeways. What is innovative is the methodology it has adopted to finance such a system, for Orange County has secured authorization from the State to impose an additional \$1 on the automobile registration fee. The law which permits this could be used by other counties should they elect to build a similar system.¹¹

City of Los Angeles

The innovative devices that Los Angeles is adopting center around two approaches. The first is an impact fee approach called "mitigation by ordinance." The second is an extensive use of traffic system management techniques by the Los Angeles Community Redevelopment Agency. The impact fee

areas are located in growth centers outside of the downtown area, while the traffic system management plan applies to the central downtown area.

Los Angeles City's Mitigation by Ordinance. The City of Los Angeles has been undergoing evolutionary change in terms of (1) the process of new development approval, and (2) the economics of transportation development. Under the first change, the zoning approval process for commercial development has been changed from what has been known as "ministerial approval" to an approach referred to as "discretionary approval." The ministerial approach is simply the automatic approval of a zoning application if it fits into the overall land use plan for the area regardless of such factors as the additional traffic impact that the development will cause. In contrast, a discretionary system requires the City's planning staff to examine all zoning applications of a commercial nature for traffic and related impacts regardless of implied approval in the zoning system.¹²

The City Council has designated four impact areas in separate ordinances. These are the Century City development area, the Coastal development area, the West Wilshire area, and the Ventura development area. The four areas were created in a similar manner but have different impact fees.

The public policy approach that the City used to create the four impact areas is called the "Citywide Transportation Impact Mitigation Procedural Ordinance."¹³ This ordinance has two major features. First, it directs the Planning Department to recommend to the City Council those areas which require a Transportation Impact Area designation. These are areas where development could raise the ratio of actual traffic volume on the areas streets and highways to 0.81 or higher of their capacity. The Planning Department then shall present to the Council an Interim Control Ordinance, which sets forth the conditions for

interim review procedures for development approval. Several Interim Control Ordinance's place moratoria on development in their respective impact areas and require the planning staff to develop traffic studies in preparation of Specific Plans. Second, the Council then will direct the planning staff to develop a Transportation Specific Plan which includes a list of specific transportation improvements, transit projects and/or trip reduction measures, transportation assessment fees, exemptions, and other relevant procedures.

The first specific plan to be approved was the Century City Specific Plan. Century City is a major development of high rise office buildings and entertainment complexes within a nine block area of Los Angeles. The plan calls for a list of traffic improvements and a procedure for prorating the cost of the improvements back to the developers.¹⁴

The second Specific Plan to be approved was the Coastal Ordinance which set forth an impact fee of \$2,010 per peak hour trip generated. The ordinance and its impact fee applies to a substantial area from the Los Angeles International area north through Westchester - Playa Del Rey and West from the San Diego Freeway to the beach. This approach differs from the prorata approach in that it calculates the total number of peak hour trips that all development in the impact area should generate. The total costs of the traffic improvements for the area are divided by the total number of peak hour trips. The result is an impact fee which is charged to the developer. The fee, like the prorata approach, places the burden of traffic mitigation on the developer.¹⁵

The third Specific Plan to be approved was the Westwood plan. This plan applies to a six block area that runs along Wilshire Boulevard just south of the University of California, Los Angeles. It also uses an impact fee approach. The basic fee is \$5,650 per peak hour trip generated.¹⁶

The fourth area is being developed under an interim control ordinance. The Ventura impact area is a several mile corridor running along Ventura Boulevard through the communities of Encino, Sherman Oaks, Tarzana, and Woodland Hills. A specific plan and a specific impact fee is being considered.¹⁷

There is a significant aspect of the Citywide Transportation Mitigation Ordinance that applies to another major transportation undertaking in Los Angeles. The Ordinance includes provisions for transportation system management plans sponsored by redevelopment agencies. There is a significant effort under way sponsored by the Los Angeles Community Redevelopment Agency, which will now be discussed.

LACRA Traffic System Management Plan. The Los Angeles Community Redevelopment Agency (LACRA), an agency of the City of Los Angeles, covers a downtown triangular area bordered by the Harbor Freeway on the west, the Santa Monica Freeway on the south, and Alameda Boulevard on the east. The redevelopment agency manages a traffic system management plan for the downtown area under the legal auspices of the Citywide Transportation Mitigation Ordinance.¹⁸

The perception in downtown Los Angeles is that as soon as the new 20 mile, \$2 billion Century Freeway is completed, the capacity of the freeway system will be set for the foreseeable future. The only available option for the future is to reduce the amount of traffic coming into the area. This can be accomplished without curtailing commercial growth with the aid of a traffic system management plan.

The LACRA TSM plan requires a project owner to implement an employee rideshare program. The intent of the program is to enroll 60% of the project's population in ridesharing programs, including car pooling, shuttles, buses, and flex time.

An important requirement of the program is that the project owner must maintain a "Commuter Transportation Coordinator" on site. The rideshare program also carries significant penalties for failing to fulfill its terms.¹⁹ A project owner can be assessed an amount of money for the purchase of shuttle vans. The exact amount of the assessment is calculated from the number of seats that the project would draw from a shuttle fleet if the project were participating in a rideshare program. The impact of the program design is to eliminate any incentive for the project owner not to participate. This is accomplished by making the investment the same regardless of the option the owner pursues. The advantage the owner obtains for participating is that he can keep the resources under his control and invest them in a manner most beneficial to his employees. The traffic system management plan is designed to complement the freeway system, the traffic impact areas, and the new rail system that Los Angeles is building. That latter system is being financed with the use of a variety of methods. One of them is a benefit assessment district.

Metro Rail Benefit Assessment Districts. Metro Rail is a \$3.2 billion, 18.6 mile rail subway being built by the Southern California Rapid Transit District (SCRTD). The subway will link downtown Los Angeles with Hollywood and with the San Fernando Valley. The metro rail financial plan calls for \$170 million to be raised through benefit assessment districts.²⁰

Two benefit assessment districts have been established to date. Their boundaries essentially consist of an 0.5 mile radius around the planned metro rail stations. The rate of assessment ranges from 30 cents to 42 cents per square foot of gross building area per year, depending on the bond repayment schedule. This method of financing is supplemented by Federal aid, and by a local sales tax.

The Bay Area

San Francisco Bay Area was one of the high growth areas of the 60's and 70's owing to the advent of micro-electronic related industries. The physical plant of the commercial and residential communities of the area has matured and there seems to be a limited potential for expansion. The new areas of growth are in the cities of Contra Costa County which are inland and fast becoming a major center of office and commercial development. Because the area is in a mature phase of development, the ability of community leaders to assign transportation improvement costs to developers is extremely limited.

The Bay area has four centers of transportation activity. Santa Clara County is expanding its freeway system with an 0.5 cent sales tax and its transit system with an additional 0.5 cent sales tax. The City of San Francisco is planning steady levels of commercial growth with no planned expansion of the traffic system by relying on an extensive transportation system management plan. The City of Pleasanton is undergoing rapid expansion but has designed a transportation system management plan as a main strategy for accomodating that growth.²¹ Finally, Northern California is operating an extensive transit system with BART (Bay Area Rapid Transit) and the several bus companies that serve the area.

Santa Clara County

Santa Clara County rests at the southern end of San Francisco Bay and contains the cities of Santa Clara and San Jose. The County has always had a high regard for transportation. It has had a good political leadership supplying transportation as a necessary component to support the high technology industry that has moved to the area. This leadership has resulted in a separate district for the bus company and the County's own freeway system.²² The County passed a

bond issue in 1961 to build eight expressways. The expressway concept was innovative, consisting of a six or eight lane major arterial with very few traffic lights or other interferences. It seems somewhat similar to the Orange County SuperStreet concept.

Santa Clara County currently employs two voter approved sales tax initiatives to support transit projects. The first of these initiatives is a bond issue to expand or build three freeways. The first freeway project is a widening of a 30 mile section of US 101, the main highway to use when traveling up the California Coast. The widening consists of the addition of high occupancy vehicle (HOV) lanes and three new interchanges. The second project is a conversion of State Highway 237. The project consists of the conversion of a six lane arterial with five traffic lights to a freeway with interchanges in place of lights. The third project is the construction of a 20 mile freeway along State Route 85, which was set aside for this purpose 35 years ago. The freeway would be a six lane freeway with two of those lanes dedicated to HOV purposes.

The second 0.5 cent sales tax was approved in 1976 before the Jarvis-Gann Proposition 13 initiative was adopted. This tax is used to support a number of different transit projects from buses to light rail. For example, 15 to 20% of the bus system is subsidized by the tax. There are a number of other initiatives being pursued.

One initiative is a corridor analysis to extend BART 12 miles into the County. Should the project be built, it would require Federal assistance. The state and local share would be in excess of \$500 million if the project eventually is built.

A second initiative is a \$50 million commitment to extend the CalTrain. This is a commuter train that runs from downtown San Francisco into San Jose. Included in the project are two additional stations.

A third initiative is a \$65 million project to add HOV lanes to locally financed expressways. These lanes would be used for buses. The possibility exists for car and van pools to use these lanes. However, the fact that the funding source is dedicated to transit purposes complicates the use of these lanes for car pooling. This is a legal question that will have to be resolved in the courts.

San Francisco

The City of San Francisco has adopted a policy, by ordinance, that the capacity of the traffic system shall be fixed for essentially the foreseeable future. No new freeways will be built in the City or to the City. Despite this static situation, the City's commercial plan will require an increase in transportation capacity. The City has made a policy decision to use a transportation system management plan to accomodate this growth that will result in a 65-70% increase in alternative forms of transportation.²³

The City is currently promoting two complementary policies. The first is a policy of creating incentives for people to use transit and other alternative forms of transportation. This is done by having project owners participate in the coordination of TSM projects. The other is to pursue a series of disincentives for people to use their automobiles in the City. This is done by purposely creating a shortage in the supply of parking facilities.

New commercial development must pay both a traffic impact fee and participate in a transportation system management plan. The impact fee is intended to reimburse the City for the traffic mitigations that it has to undertake because

of the development. The impact fee amount is a one-time charge of \$5.00 per square foot of the development's space. The TSM is an extensive process that is very similar in concept and structure to that of the Los Angeles CRA.

The City's planning staff approves commercial buildings with a unique standard for parking. Any other city without the space and traffic problems of San Francisco would require a high ratio of parking spaces to the project's employees. In San Francisco, a development which would normally have a 2,000 space garage would be approved with a 200 space garage. Many of these spaces are dedicated to vans, shuttles, car pools, and visitor parking. The economic impact of this city requirement is that it helps to support monthly parking rates of \$250 per car. This contributes to the "disincentive" approach the City has in transportation policy.

APPENDIX FOOTNOTES

1. Theme suggested by Dr. William Garrison, Professor of Civil Engineering, University of California, Berkeley in a personal interview, August 19, 1986.
2. Personal interview with Dr. Thomas Fortune, Public Affairs Officer, Orange County Transportation Commission, August 15, 1986.
3. Ibid.
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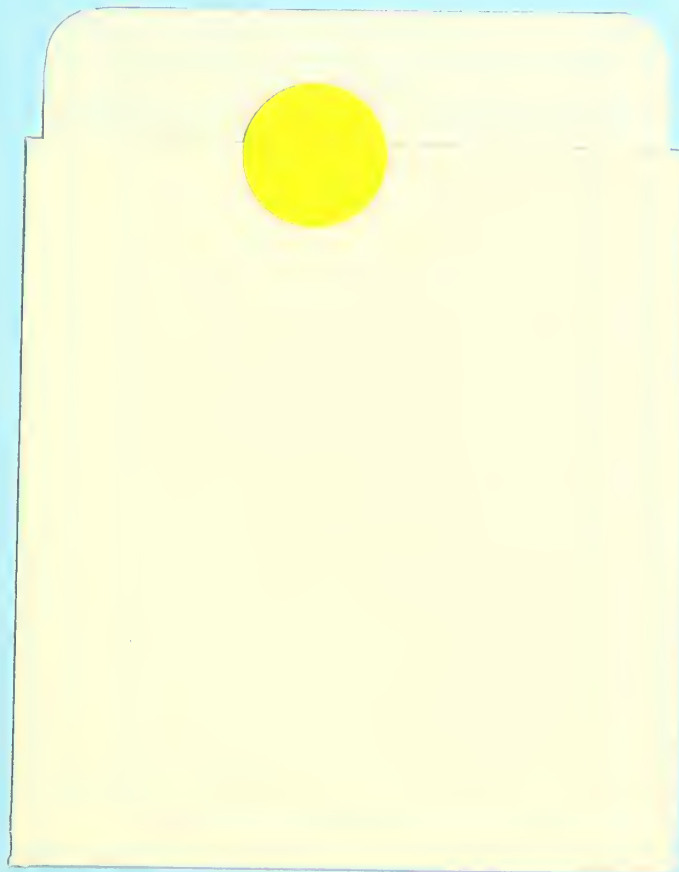


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